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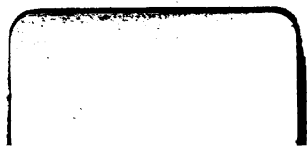
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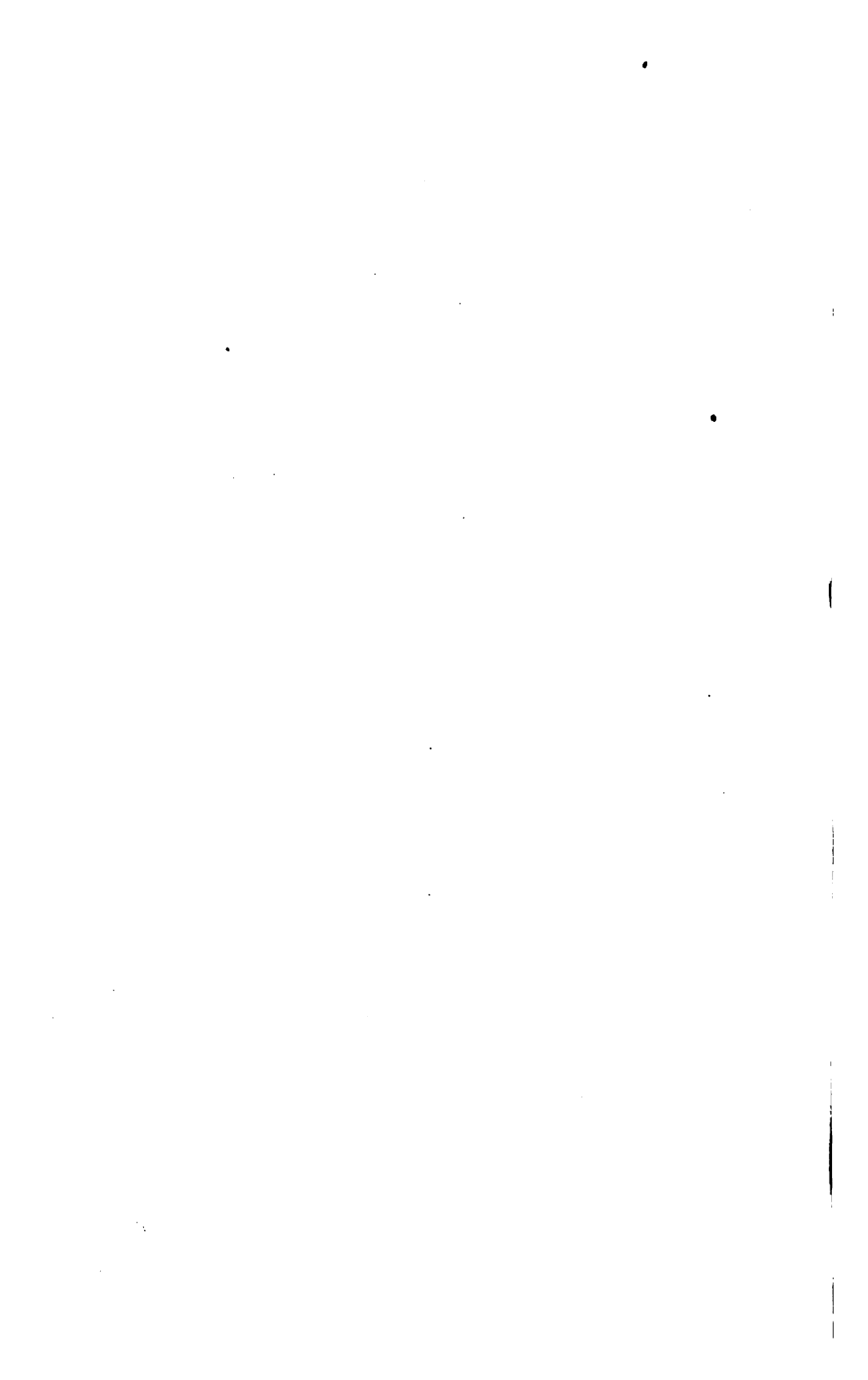
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PROCEEDINGS
OF THE
AMERICAN PHARMACEUTICAL ASSOCIATION,
AT THE
NINTH ANNUAL MEETING,
HELD IN THE
CITY OF NEW YORK.
SEPTEMBER, 1860.
WITH THE
CONSTITUTION AND ROLL OF MEMBERS.

PHILADELPHIA:
MERRIHEW & THOMPSON, PRINTERS,
Lodge St., corner of Kenton Place.
1860.

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LIST OF COMMITTEES,

TO REPORT AT THE ANNUAL MEETING TO BE HELD IN
ST. LOUIS, AUGUST, 1861.

EXECUTIVE COMMITTEE.

William Procter, Jr., Chairman.....Philadelphia, Pa.
Charles A. Tufts.....Dover, N. H.
James Balmer.....Baltimore, Md.
George W. Weyman.....Pittsburg, Pa.
James T. Shinn.....Philadelphia, Pa.

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P. Wendover Bedford.....New York City.

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Charles A. Junghanns.....Cincinnati, O.
George W. Andrews.....Baltimore, Md.

COMMITTEE ON THE SUBJECT OF THE SALE OF POISONS.

Samuel M. Colcord, Chairman.....Boston, Mass.
William Procter, Jr.....Philadelphia, Pa.
William J. M. Gordon.....Cincinnati, O.

COMMITTEE TO PROMOTE THE ATTENDANCE OF MEMBERS AT THE MEETING AT ST. LOUIS, 1861.

Samuel M. Colcord, Chairman.....Boston, Mass.
Edward Parrish.....Philadelphia, Pa.
Edwin O. Gale.....Chicago, Ill.
George W. Weyman.....Pittsburg, Pa.
John Meakim.....New York City.
Frederick Stearns.....Detroit, Mich.
W. J. M. Gordon.....Cincinnati, O.
John Thomson.....Sumter, S. C.
W. H. Peabody.....Buffalo, N. Y.

COMMITTEE CONTINUED TO BRING FORWARD DEFERRED BUSINESS AT THE NEXT ANNUAL MEETING.

Edward B. Squibb, Chairman.....Brooklyn, N. Y.
William Procter, Jr.....Philadelphia, Pa.
Charles T. Carney.....Boston, Mass.

**LIST OF MEMBERS AND OTHERS APPOINTED TO INVESTIGATE
AND REPORT ON SPECIAL SUBJECTS, AT THE
MEETING AT ST. LOUIS, AUGUST, 1861.**

WILLIAM PROCTER, JR., of Philadelphia.	{ 1. Is morphia volatilizable by heat without losing its narcotic properties? If not, how are the narcotic effects of opium smoking accounted for?
THOMAS A. LANCASTER, of Philadelphia.	{ 2. Cerate made with Japanese wax is said to acquire a dark color. Is this change a necessary consequence of the use of that wax? and what is the real value of that substance in Pharmacy?
JAMES T. SHINN, of Philadelphia.	{ 3. To what extent can oil of benne (ol. sesami) be substituted for olive oil in Pharmacy?
W. J. M. GORDON, of Cincinnati.	{ 4. What are the probabilities in favor of tartaric acid and tartar becoming commercial products of the wine culture of the Ohio valley?
Henry A. TILDEN, of New Lebanon, N. Y.	{ 5. Can the root of Aconitum napellus be economically produced in the United States, and does it possess the activity of the imported drug derived from that plant?
BENJAMIN J. CREW, of Philadelphia.	{ 6. Arsenical pigments;—are they as extensively employed, and with such poisonous effects as has been asserted?
WM. R. WARNER, of Philadelphia.	{ 7. Is there a permanent solvent for cantharidin that will retain it in a liquid state in pharmaceutical preparations?
BENJAMIN J. CREW, of Philadelphia.	{ 8. Garancin. What is the best process for obtaining it, and the best method of testing its purity as found in commerce?
JAMES BALMER, of Baltimore.	{ 9. Is there a principle in Chenopodium anthelminticum analogous to santonin?

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| FREDERICK L. JOHN,
of Philadelphia. | { 10. Is there a crystalline active principle in capsicum? or does it owe its activity to a soft resin? |
| HENRY F. FISH,
of Waterbury, Conn. | { 11. What are the advantages, if any, of Conium seeds for making the Tinctura Conii, as regards uniformity of medicinal strength, and increased power, compared with the leaves? |
| JOHN FABER,
of New York City. | { 12. Has the resinoid principle of colocynth, extracted by alcohol, a reliable and constant therapeutic power? and may it advantageously be employed in medicine? |
| GEORGE W. WEYMAN,
of Pittsburg. | { 13. The oil wells of Western Pennsylvania—the quantity and quality of oil they afford at present, their prospective value, and the geological character of the formation where the oil is deposited? |
| CHARLES BULLOCK,
of Philadelphia. | { 14. Does wood creasote exist in the market? To what extent compared with coal tar creasote or carbolic acid? And what are the objections, if any, to the substitution of the former by the latter substance in medicine? |
| WILLIAM J. WATSON,
of New York City. | { 15. Cotton seed oil, the expressed oil obtained from the seeds of Gossypium herbaceum, being easily obtained, and at a low rate:—Are there any therapeutic objections to its being substituted for olive oil, in pharmaceutical preparations? |
| E. DONNELLY, M. D.,
of Philadelphia. | { 16. Is propylamin the principle in Ergot that influences uterine contraction; and if so has the propylamin of commerce, derived from herring pickle, a like power? |
| WILLIAM PROCTER, JR.,
of Philadelphia. | { 17. Is there a test for the therapeutic value of extract of Cannabis Indica, based on the chemical behaviour of its resin, that may be relied upon to distinguish the active from the inert drug? |
| FREDERICK L. JOHN,
of Philadelphia. | { 18. It has been alleged that commercial honey is sometimes largely adulterated with artificial grape-sugar syrup, and ordinary syrup. Is this true; where, and to what extent, is it carried on and how may the adulteration be detected? |

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| JOHN FABER,
of New York City. | { 19. What is the most eligible manner of dispensing Phosphorus, for internal use ? |
| GEO. J. SCATTERGOOD,
of Philadelphia. | { 20. Is the sedative action of <i>Veratrum viride</i> due to the veratria known to exist in it, or is there another principle contained in the root to which that power is due ? |
| Prof. JOSEPH CARSON,
of Philadelphia. | { 21. <i>Copaiba</i> . What are the botanical sources of this drug as at present furnished to commerce ? and what is its present commercial history ? |
| E. M. BLATCHFORD, .
of Rockport, Mass. | { 22. What is the actual condition of the cod-liver oil production and trade, in the United States ? |
| FREDERICK STEARNS,
of Detroit, Mich. | { 23. Is the present wholesale production of sugar-coated pills advantageous to the interests of medicine ? If not, what are the objections to it ? and what are the best processes for coating pills with sugar, gelatin, and other substances, for extemporaneous use, by the dispenser of prescriptions ? |
| J. L. LEMBERGER,
of Lebanon, Pa. | { 24. Does the root of <i>Convolvulus panduratus</i> contain a glucosidic resin analogous to jalapin, and has it cathartic properties ? |
| P. WENDOVER BEDFORD,
of New York City. | { 25. What is the value of <i>Chelidonium majus</i> as a source of sanguinarina, compared with <i>Sanguinaria canadensis</i> ? |
| WILLIAM R. WARNER,
of Philadelphia. | { 26. What is the tannin value of the indigenous astringents of the United States, for medicinal and other purposes ? |
| FERDINAND F. MAYER,
of New York City. | { 27. Can Phospho-molybdic acid, as a reagent for alkaloids, be made available as a test for the strength of the narcotic extracts ? |
| FERDINAND F. MAYER,
of New York City. | { 28. What are the statistics of the trade in castor oil, as regards locality and amount of production of the beans, and the preparation of the oil ? |
| WM. R. WARNER,
of Philadelphia. | { 29. To what proximate principle does the marc of castor oil beans owe its activity as a purgative ? |
| Prof. ROBT P. THOMAS,
of Philadelphia. | { 30. What is the true botanical source of "Southern Prickley Ash bark ?" |

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| EDWARD PARRISH,
of Philadelphia. | { 31. The subject of new remedies, with reference to their effect upon the progress of pharmacy, and their educational influences upon pharmacutists. |
| GEORGE W. WEYMAN,
of Pittsburg, Pa. | { 32. Anilin dyes—the history of the discovery and production of these coloring agents, and their probable influence on the decorative arts. |
| JOHN M. MAISCH,
of Philadelphia. | { 33. An essay on tartaric acid, and the medicinal tartrates, in their chemical and pharmaceutical relations. |
| THOMAS A. LANCASTER,
of Philadelphia. | { 34. Is the tomato available as a source of citric acid for the supply of commerce, and has the seed of this fruit any medicinal power? |
| THOMAS S. WIEGAND,
of Philadelphia. | { 35. Are the "Spirits" of the Pharmacopœia better when made by distillation, than the preparations made by dissolving the respective volatile oils in alcohol? |
| HENRY F. FISH,
of Waterbury, Conn. | { 36. What course should be adopted by pharmacutists in view of the present state of the liquor market, particularly as regards factitious brandies and wines? |
| THOMAS S. WIEGAND,
of Philadelphia. | { 37. An essay on the commerce in Quackery, in the United States, and its influence on the practice and progress of pharmacy. |
| ALEXANDER CUSHMAN,
of New York City. | { 38. The leaves of the castor oil plant (<i>Ricinus communis</i>), and their reported property of promoting the secretion of milk. |
| CHARLES CASPARI,
of Baltimore, Md. | { 39. What is the botanical source and commercial history of the "anacahuito wood" of Mexico, said to be used in Germany in diseases of the lungs? |
| L. H. DOHME,
of Baltimore, Md. | { 40. What are the sources of the senega and spigelia of present commerce? |
| Prof. ROBT P. THOMAS,
of Philadelphia. | { 41. Can Elaterium be produced in the United States, and if so, is the indigenous product equal in power to the English drug? (To be finally reported on at the meeting of 1862.) |

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| EDWARD PARRISH,
of Philadelphia. | { 42. What is the smallest outfit of apparatus for a retail pharmacist with reference to the preparation of those chemical and pharmaceutical products which are economically made on a small scale ? |
| CHARLES SHIVERS,
of Philadelphia. | { 44. What are the best arrangements and precautions to be observed in the preparation of soap for pharmaceutical uses. |
| HENRY T. CUMMINGS,
of Portland, Maine. | { 45. What is the active principle of Arnica flowers; and what the best process for isolating it ? |
| F. CHAPMAN HILL,
of Antioch College, O. | { 46. The American species of the genus Cantharis as regards their usefulness in medicine as vesicants, their existing quantity in view of the supply of commerce, and other information regarding them ? |
| E. R. SQUIBB, M. D.,
of Brooklyn, N. Y. | { 47. What is the best form and material for a still for the pharmacist's use, of from two to four gallons capacity, appropriate for heating by gas or stove heat, which shall combine economy with efficiency and fitness ? |
| EVAN T. ELLIS,
of Philadelphia. | { 48. An inquiry relative to the comparative value of the several arrow roots of commerce, which are derived from the Maranta arundinacea. |
| ROBERT BATTEY, M. D.,
of Rome, Georgia. | { 49. European Pharmacy,—what are the chief differences and points of resemblance between it, and our own ? |
| ALPHEUS P. SHARP,
of Baltimore, Md. | { 50. What are the principal sources of oil of sassafras for the supply of commerce, and what is its mode of manufacture and the quantity produced annually ? |
| HENRY A. TILDEN,
New Lebanon, N. Y. | { 51. An investigation of the relative therapeutic value of foreign and indigenous medicinal plants. |

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PREFATORY NOTE.

TO THE MEMBERS OF THE ASSOCIATION.

In accordance with the duty assigned by the Constitution to the Executive Committee, of editing the volume arising out of the Proceedings of each Meeting—a duty which necessarily falls on the Chairman—the arrangement of the manuscript resulting from the transactions of the late meeting at New York was at once commenced, and carried through the press as rapidly as was consistent with the careful correction and revision of the sheets. The resolution brought forward by the Executive Committee of last year, requiring all papers to be presented in a condition *fit for the printer*, should be looked upon rather as prospective in its action, than as applying to the manuscript of the present meeting; but it is hoped that, by another year, members will become sufficiently aware of the very great relief they will afford the Editor, by a reasonable care in the preparation of their manuscript, as regards mechanical execution and attention to the spelling of proper names, to induce them to accord it cheerfully. An additional inducement, if needed, will be found in the satisfaction which every author receives from a correct rendering of his ideas. So much in regard to the Reports and Papers. But in relation to the Minutes, the Committee do not believe it possible, with the ordinary happenings and urgency of our Annual Meetings, and in view of the change of hands from year to year, of the Secretaryship, that “the Minutes” can be handed to them in a state fit for the printer, by that officer, immediately after the close of the meeting. In the present year’s minutes, more than half of the matter was not prepared by the Secretary, it being made up from the stenographic reports, which in many instances needed correction.

The point involving the most trouble and perplexity, in the preparation of the Minutes for publication, is that of getting the names and addresses of new members correct, the greatest laxity being manifest in the papers submitted to the Executive Committee, by names wrongly spelled, and attributed to wrong places. For this reason the Committee propose to have printed forms prepared for use at the next meeting, so that it shall be less easy for these errors to occur on these occasions. For a similar reason, it is suggested to our members throughout the Union, who may have the names of friends to propose for membership, that they apply to the Chairman of the Executive Committee, during the recess, and receive a Constitution

and printed *form* of application, which, when executed, will remain in the archives of the Association after the election of such persons to membership, to show who supported their application. (See page 244-250.) In the present hurried manner of proceeding at the meetings, the real standing and qualifications of applicants cannot be learned in many instances.

A new feature of the present Minutes is the introduction of stenographic reports of discussions on subjects of interest, as the sale of poisons, the next place of meeting, &c. When it was proposed to employ a Stenographer to assist the Secretary, the New York College of Pharmacy, with a degree of liberality characteristic of that body, gratuitously placed an excellent reporter, Dr. Shrady, at the service of the Association, and to him mainly are the reports due; but the Committee would be doing great injustice if they withheld their acknowledgement of the services rendered to them in other portions of the minutes, by the excellent report that appeared in the Drug Reporter of New York, edited by P. D. Orvis, from which they have made several extracts. They regret, however, that none of the reporters recorded the debate in reference to weights and measures. The Committee believe the interspersion of these discussions among the Secretary's minutes, which, with the exception of the resolutions, are in larger type, adds greatly to their interest.

The paper of Dr. Thomas, on a new Garlic, and that of Dr. Donnelly, on Cacao, are each illustrated by lithographic plates, which in point of execution are creditable to the artist, and will add to the character of the work.

It will be perceived that the size of the volume this year is less than that of the two immediately preceding it. This arises mainly from the absence of several long reports, and to the fact that whilst the original papers are more numerous than last year, their bulk is very much less; most of them being short and practical in their character. The Report on the Progress of Pharmacy, which was printed first, and which is by far the longest report of this kind yet presented, is mainly in small letter, which very materially curtails the size of the volume. This would not have been done had the real extent of the other MSS. been then known. In order to render this report more accessible, a copious index to it (as well as to the other parts of the volume) has been prepared, which will greatly enhance its usefulness, as an outline view of the discoveries in Pharmacy and its accessory sciences during the past year.

With regard to the accuracy of this volume, the Chairman of the Committee has, perhaps, no better right to claim for it exemption from errors, typographical or in sense, than its predecessors; yet, so far, none of any consequence have become known to him, except the following:—In the list of elected members at page 17, Isaac M. Sands should be Jesse M. Sands; and Theodore Moitz should be located at Fishkill, N. Y., instead of at Pittsburg, Pa., both of which errors are corrected

in the Roll. And at page 177, in the twentieth line from the bottom, read "spirits of camphor," instead of "eight pints of camphor." Should it be found that the other names of members have been wrongly spelled or addressed, they are requested to inform the Chairman of the Executive Committee, or the Treasurer, who will take means to have them corrected in the roll of next year.

An edition of one thousand copies of the book has been printed, and all bound in muslin.

The price fixed for the volume is one dollar, post paid, or eighty cents without postage. As the original information contained in this volume is valuable, it is hoped that members will promote its distribution by the sale of a number of copies, and thus aid in liquidating the expenses of publication.

By enclosing one dollar to the Chairman of the Executive Committee, the volume will be mailed, post paid, to the address given, which in all cases should be printed or carefully written. The Proceedings for the years 1859, 1858, 1857 and 1856, with a few examples of 1853 and 1854, may be had of the same officer; those for 1852 and 1855 being entirely out of print. Should any members have duplicates of the Proceedings of these two last years, they are invited to send them to the Executive Committee to make up complete sets.

The Treasurer, HENRY HAVILAND, 23 John street, New York, takes this occasion to earnestly invite the attention of members in arrears, to the necessity of liquidating their dues, which, by reference to the report of the late Treasurer, at page 20, amount to a considerable sum. Attention is also directed to the Suspended List, published in accordance with the Constitution, as it is believed that many of the names have been allowed to get there through inadvertence.

All members desiring the certificate of membership should apply to the Treasurer, as above, enclosing the fee, three dollars, accompanied by the printed or plainly written address of the applicant, and the directions for delivery.

Immediately after the list of Committees, at page vi., is a list of the names of those gentlemen to whom subjects were referred for investigation, (to be reported on at St. Louis next year,) as a reminder of the duty they have accepted. The large proportion of instances of neglect to answer the queries is believed to arise partially from oversight, until too late for its accomplishment, and the Executive Committee most earnestly invites these gentlemen to commence the labor early, so as to insure its completion. No feature of the operations of the Association is more important, or gives it greater character and standing, than these permanent records of the scientific labor of its members, and as the pages of the Proceedings are open to all the members, through the custom of accepting volunteer papers, it is hoped that many of them in the quiet

sphere of their home duties will find time, and feel the interest, to write out their experience in many matters pertaining to our profession.

Believing that enough has been said in regard to the several points calling for notice, the Volume is submitted to the favorable consideration of members.

WILLIAM PROCTER, Jr.,

Chairman of the Executive Committee,

500 South Ninth Street, Philadelphia.

Philadelphia, October 31st, 1860.

MINUTES

OF THE

NINTH ANNUAL MEETING.

The Ninth Annual Meeting of the American Pharmaceutical Association assembled at the University Buildings, in the city of New York, on Tuesday, September 11th, 1860, at 3 o'clock P. M.

The President, Samuel M. Colcord, of Boston, and the Secretary, Charles Bullock, of Philadelphia, being present, the meeting was called to order.

The President having appointed W. J. M. Gordon, of Cincinnati, John M. Maisch, of Philadelphia, and Isaac Coddington, of New York, as a Committee on Credentials, a recess was had during their action, and whilst the members present enrolled their names; after which the Committee reported the following delegates appointed by various pharmaceutical bodies:—

From the Massachusetts College of Pharmacy.

Thomas Restieaux, Boston,	Charles T. Carney, Boston,
Thomas Hollis, “	John Buck, Chelsea, Mass.,
E. M. Blatchford, Rockport, Mass.	

From the New York College of Pharmacy.

H. T. Kiersted,	William Hegeman,
George D. Coggeshall,	John Milhau,
Thomas T. Green.	

From the Philadelphia College of Pharmacy.

John M. Maisch,	Charles Shivers,
William R. Warner,	James T. Shinn,
George J. Scattergood.	

From the Maryland College of Pharmacy.

John Block,	Joseph Roberts,
J. Faris Moore,	James Balmer,
	Louis Dohme.

From the Cincinnati College of Pharmacy.

William J. M. Gordon,	Charles A. Junghanns,
C. Augustus Smith,	Edward S. Wayne,
	J. C. Parr.

The Executive Committee reported the names of the following persons as having been elected members of the Association since its last annual meeting:—

Thomas Kinghorn, Brooklyn, N. Y.
 Albert J. Congden, East Greenwich, R. I.
 George J. Scattergood, Philadelphia, Pa.
 William Evans, Jr., “
 Joseph L. Moffat, Roxbury, Mass.
 W. Pryor Creecy, Vicksburg, Miss.
 Francis L. Gaither, Washington, D. C.
 J. B. Moore, Danville, Pa.

A list of names for membership was reported by the Executive Committee, without the usual vouchers accompanying them. After some discussion, the list was withdrawn for further consideration.

The Executive Committee then reported the following names as recommended for membership:—

John Butterworth, Boston, Mass.	J. Lewis Crew, Philadelphia, Pa.
John L. Hunnewell, “	William Saunders, London, C. W.
Francis Tinker, Leominster, Mass.	John Benzinger, Baltimore, Md.
George B. Fish, Augusta, Ga.	F. A. Weber, Rockport, Mass.
Robert C. Wardell, Battle Creek, Mich.	Thomas Sisson, Hartford, Con.
John R. Drake, Milwaukee, Wis.	Levi Tower, Jr., Boston, Mass.
Joshua G. Wilbur, Boston, Mass.	Charles E. Savelle, Roxbury, Mass.
Benjamin J. Crew, Philadelphia, Pa.	Sargeant P. Coe, Portland, Maine.
Elijah Smalley, Boston, Mass.	Edward H. Fernald, Boston, Mass.
	Charles F. Rogers, Newton, Mass.

A ballot was ordered. The President appointed Joseph

Laidley and Isaac Coddington tellers, who reported that all the persons above-mentioned had been elected to membership.

The roll of members was then called and the following marked present, viz :—

Henry F. Fish, Waterbury, Con.	Henry A. Tilden, N. Lebanon, N. Y.
William Procter, Jr., Philadelphia.	Ferd. F. Mayer, New York.
T. S. Wiegand, “	Granville M. Clark, Boston.
P. Wendover Bedford, New York.	James Gordon, Boston.
James T. Shinn, Philadelphia.	John W. Shedden, New York.
W. J. M. Gordon, Cincinnati.	O. G. Dort, Keene, N. H.
Thomas Restieaux, Boston.	Samuel M. Colcord, Boston.
Charles A. Tufts, Dover, N. H.	Ashel Boyden, Boston.
Joseph Laidley, Richmond, Va.	George C. Close, Brooklyn, N. Y.
Thomas A. Lancaster, Philadelphia.	Wm. Evans, Jr., Philadelphia.
James Stratton, Bordentown, N. J.	George J. Scattergood, “
Geo. W. Weyman, Pittsburgh, Pa.	Henry Haviland, New York.
Harmar D. Scully, “	G. W. Berrian, Jr., N. Andover, Mass.
Jos. L. Lemberger, Lebanon, Pa.	Charles T. Carney, Boston.
T. R. Spence, Detroit, Mich.	William M. Giles, New York.
James Balmer, Baltimore, Md.	John H. Currie, “
Lewis T. Sillyman, Columbia, S. C.	John M. Maisch, Philadelphia.
Henry Warren, Boston, Mass.	Isaac Coddington, New York.
Edmund Dana, Jr., Portland, Me.	Frederick Hale, New York.
James T. King, Middletown, N. Y.	John Meakim, New York.
H. M. Whitney, Lawrence, Mass.	Wm. B. Little, San Francisco.
John Thomson, Sumter, S. C.	Benj. J. Crew, Philadelphia.
John Block, Baltimore, Md.	Charles Bullock, “
John Buck, Chelsea, Mass.	Chas. A. Junghanns, Cincinnati.
John Canavan, New York.	John Milhau, New York.
William Neergaard, New York.	Eugene Dupuy, “
Jos. H. Thatcher, Portsmouth, N. H.	T. W. Metcalfe, Williamsburg, N. Y.
Henry T. Kiersted, New York.	Levi Tower, Jr., Boston.
Thomas T. Green, New York.	William R. Warner, Philadelphia.
John Faber, New York.	Adam H. Wilson, “
W. A. Gellatly, New York.	Robert J. Davies, Brooklyn, N. Y.
E. R. Squibb, Brooklyn, N. Y.	Wilson H. Pile, Philadelphia.
N. S. Harlow, Bangor, Me.	M. S. McConville, Worcester, Mass.
R. J. Taylor, Newport, R. I.	

(Continued at page 18.)

The President now called for the Reports of Standing and Special Committees. The Reports of the Executive Committee, of the Committee on the Progress of Pharmacy, and of the Committee on Home Adulterations were read by title and laid on the table. The Report on the Act of Incorporation was not presented,—the Chairman being absent.

The appointment of the committee to nominate officers being

in order, the several delegations present, in accordance with the Constitution, named the following members :—

Thomas Restieaux, from the Massachusetts delegation.

Thomas T. Green, “ New York “

John M. Maisch, “ Philadelphia “

John Block, “ Maryland “

W. J. M. Gordon “ Cincinnati “

The following named gentlemen were chosen from the Association at large, by the President, and added to the committee :— William Procter, Jr., Philadelphia, Dr. E. R. Squibb, of Brooklyn, N. Y., and Charles A. Tufts, of Dover, N. H.

The reading of Reports of the Standing Committees being in order, the Report of the Executive Committee was read by Charles T. Carney, Chairman :—

REPORT OF THE EXECUTIVE COMMITTEE.

To the American Pharmaceutical Association :

The Executive Committee herewith present their Annual Report for the past year, Sept. 1859, to Sept. 1860.

They congratulate their associates upon the prosperity which has attended the Association the past year, and trust that as each year adds to our numbers, it may also add to our influence for good.

We ask your attention briefly to our record for the year just closing :

The volume of Proceedings for 1859 was published at as early a date as practicable, but not as soon as in our judgment the annual record of our meeting should be placed in the hands of our members.

Some three months elapsed after the close of our session in Boston before the volume could be delivered by the printers. This was owing to causes entirely beyond the control of the Executive Committee, and by no neglect on the part of the publishers, who did all in their power to expedite the work, and your Committee think the typographical portion of the volume bears record of the care and fidelity bestowed upon it by the printers. There are some errors to be found in it, but they are those which should have been corrected by the Committee.

We can only say that a great amount of care and labor was bestowed upon the “proof-sheets,” and as far as possible every precaution taken to ensure a correct edition.

We ask your indulgence for any errors, and venture to make a few suggestions which may make the labors of our successors less arduous.

The last manuscript for publication, could not be given to the printers, by the Executive Committee, until Nov. 28th ; a delay was thus caused which could be in future avoided, by having all manuscripts intended for

publication given to the Executive Committee on or before the close of each session.

We would also suggest that the "copy" be complete when handed in for publication; our Annual Report is yearly growing in size as well as value; the labor of proof-reading and superintending the publication, will be each year greater, and if the manuscripts are in a complete state ready for the printer when given in, much care would be taken from the Publishing Committee.

It is not a small job now, this annual book publishing, and before many years the Association may be called upon to provide some means for the editing of the Proceedings, as we can hardly expect to find among our members those who are situated in the centres of book publishing, and who can afford the time, care and attention required for the discharge of this duty.

We respectfully suggest that in every practicable case the correcting of proof be left with the Executive Committee; in this way some delay may be avoided; owing to sending proofs by mail, the danger of loss, miscarriage, and also the delay are largely increased.

We respectfully offer the following for the acceptance of the Association:

Resolved. That the Executive Committee receive from the hands of the Secretary, on the last day of the session, all papers and manuscripts, with the minutes of the meeting, referred to them for publication. Said manuscripts to be fairly and legibly written, and in proper state to be given to the printer; all manuscripts and papers not so delivered, to be excluded from the printed Report, unless delay be granted by vote of the Association.

The passage of this Resolve, your Committee feel confident, will materially aid their successors in discharging their duties.

The book makes a volume of 416 pages, and may be safely compared, for valuable papers, with any that have preceded it. An edition of one thousand and seventeen was printed, all bound in boards, and one sent to each member by mail, postage paid, excepting those that were delivered to members by those residing in the great central cities.

Your Committee would here express their grateful acknowledgments to Messrs. Charles Bullock and Edward Parrish of Philadelphia; A. P. Sharp, Baltimore; Joseph W. Nairn, Washington; W. J. M. Gordon, Cincinnati; Geo. W. Berrian, Jr. and Messrs. Lazell, Marsh and Gardner of New York; Saml. M. Colcord, Boston; and Henry T. Cummings, Portland, who very kindly took charge of and delivered the books to those resident near their several cities.

Also to those who have been instrumental in selling the volume the past year, we would gratefully allude. We take pleasure in informing the Association, that we have sold one lot of a hundred books to an enterprising firm in London, England, Messrs. Morgan Bro's., and we trust

our brethren the other side of the water may, through our published Proceedings, become aware of the existence and object of our Association.

Quite lately we have been made aware of the fact that several of our members have received no book for 1859. The fault lies not with the Executive Committee, and we shall esteem it a favor if all who have not received their copy of Proceedings, will notify the treasurer, and receive a volume during this session.

There are errors in the roll of members : your Committee have endeavored to ascertain the correct spelling in all cases, but they will feel obliged to any member whose name is misspelt, omitted, or requires correction in any way, for notice of the same, that it may be altered. It is quite important that these matters be attended to while the Association is in session. We trust all interested will give this prompt attention.

The cost of publishing the last year's volume, was nine hundred and thirteen dollars and seventy-nine cents, including also the printing of the Report on Weights and Measures, and the wrapping for mailing of five hundred copies, including paper. This amount was distributed as follows :

For printing and binding 1017 copies of Proceedings,	\$847.24
Enveloping 500 copies and paper,	6.00
300 pamphlets " Weights and Measures,	60.55
	\$913.79

Mr. A. B. Taylor, the author, of the Report on Weights and Measures, very kindly offered to share the expense of printing the special report, and paid to the Executive Committee the sum of thirty dollars for this purpose. We submit a detailed bill of the entire expenditure.

A considerable portion of this edition remains on hand, and your Committee would remind the members, that by giving their personal attention to the sale and distribution of these books, much benefit pecuniarily and otherwise would ensue to this Association.

The certificate of membership has been issued to thirty-nine members the past year. There have been eight members admitted by the Executive Committee during the interim, viz.

Thomas Kinghorn, Brooklyn, N. Y.
 Albert J. Congden, E. Greenwich, R. I.
 George J. Scattergood, Philadelphia, Pa.
 William Evans, Jr. "
 Joseph L. Moffatt, Roxbury, Mass.
 W. Pryor Creecy, Vicksburg, Miss.
 Francis L. Gaither, Washington, D. C.
 J. B. Moore, Danville, Pa.

During the past year, our number has been lessened by the death of several of our associates, some of whom were with us in full health at our last

meeting. It calls forth feelings of sympathy with those more nearly related to the deceased, as well as sober views for ourselves and our own future. We cannot hope to pass a single year now, as an Association, without having some records of death's doing to make at each annual meeting. Our numbers are so large and widely scattered, that it would be indeed remarkable if we have no loss to record. Let the fact that this *must* be not make us less hopeful for the future, but strengthen us in every faithful discharge of duty, feeling that whenever and however the summons comes, those who have done faithfully and well need feel no fear.

Those who have during the past year been called from life, are, as far as your Committee have learned, the following:

Samuel R. Philbrick, Boston, Mass.

John T. Brown, Boston, Mass.

F. A. Hegeman, New York City.

Jas. T. Maxwell, New York City.

Albert G. Palmer, Washington, D. C.

Ashbury Kent, Cincinnati, Ohio.

A. M. Stevens, Cincinnati, Ohio.

Samuel R. Philbrick attended our last meeting, and was always a firm friend to our cause. He was a warm friend and an upright honest man.

John T. Brown, also in health at our last meeting, died after a few months' sickness, of consumption. He had been established but a short time in business, and had every opportunity for a prosperous career. He had, however, in his brief business life, endeared himself to a large circle of friends by his open and generous character.

Mr. F. A. Hegeman died at the early age of 39 years, in August last. As a pharmacist, he enjoyed the confidence of a large circle of medical friends, and was esteemed by all who knew him, for his fine traits of character.

Mr. Jas. T. Maxwell died in March last. He had been engaged in the wholesale drug business, for many years, and established a reputation for high-minded and honorable dealing. He was highly esteemed for his sterling qualities by a large circle of friends and acquaintances.

Wishing this Association a long continued and prosperous career, we take our leave of the duty assigned us; trusting that our successors may meet with that hearty sympathy and support, which it has been our happiness to receive, we gratefully acknowledge the kindness of our fellow-associates and respectfully submit this Report.

CHAS. T. CARNEY, *Chairman.*

G. W. BERRIAN, JR.

CHAS. A. TUFTS,

CHAS. BULLOCK,

Committee.

On motion, the Report as read was accepted and adopted. Mr. Fish, of Waterbury, Connecticut, moved that the resolution of adoption be re-considered, to allow him to remark on a resolution embodied in the Report.

Dr. Squibb seconded the motion.

Mr. Fish said he had no idea of detaining the Association a moment unnecessarily, but the effect of that resolution was to exclude any report which was not presented to this meeting, and acted upon by it, and as there were many papers which it was impossible to finish up immediately, he would suggest to the Executive Committee to modify the resolution so as to grant a person a few days to finish his report, when he has not done so already. The resolution rejected a report entirely if it was not presented.

Mr. Carney said that there was a provision in the resolution, that a short delay could be granted to a member by vote of the association. It might be made to read, if it would better accord with Mr. Fish's view, that delay could be granted by the Executive Committee.

Dr. Squibb said it was well known that after the adjournment of the convention the Executive Committee rarely got together; and they could only take into consideration such a proposition by writing to one another, as they never live in the same city; and this would cause great trouble and delay in the publishing of the Proceedings of the Association. He therefore preferred the original resolution as it stood.

Prof. Procter said it seemed to him that, when a subject was read and the question was asked whether the paper to be presented was ready, the author, if he could not answer in the affirmative, should request time of the Association to finish his paper.

Mr. James Stratton, of Bordentown, N. J., moved to adopt the original resolution as it stood. Motion carried.

The Chairman of the Committee on the Progress of Pharmacy not being present, that Report was deferred until to-morrow.

The Report of the Committee on Home Adulterations was read by the Chairman, Charles T. Carney, and was, on motion, unanimously adopted, and referred to the Executive Committee for publication. (See page 130.)

In the absence of the Chairman of the Committee on the Act of Incorporation, no Report was received. (See page 11).

Mr. Meakim, of New York, offered the following resolution:—

Resolved, That a Business Committee of three be appointed to take charge of any recommendations or unfinished business, and the offering of suitable resolutions for the action of the Association.

The resolution was adopted, and the Chair appointed Messrs.

Squibb, Procter and Carney, to constitute the Committee.

The President now read his annual address, as follows :—

President's Annual Report to the American Pharmaceutical Association.

ASSOCIATES,—On retiring from this honorable position, it is my privilege to thank you for the kindness with which you have sustained me as your presiding officer.

I have tried to fulfil the promise made to you on assuming its responsibilities that you should have my best efforts; and the consideration and support I have received from each officer and member, is to me an assurance that my successors will find in this Association every attention and support in an honest and impartial administration of its affairs.

It gives me pleasure to congratulate you upon the very prosperous condition in which we commence the ninth year of our labors. Our rapidly increasing numbers, and the amount, variety and quality of talent now at our disposal and continually augmenting, gives promise of a bright and hopeful future; of a development commenced that shall place pharmacy with the foremost in the sanitary reforms of the day; performing an active part in removing that stigma from medicine produced by systematic overdosing,—of which Homœopathy and the prevailing medical infidelity is a counterpoise, and which, like the services of counter-irritants, having performed their uses, should be abandoned.

Your order, passed at our last meeting, directing me to forward your petition to the Secretary of the Treasury of the United States, for the removal of restrictions in publishing the importation of drugs, was promptly followed. In reply I received the following answer :—

TREASURY DEPARTMENT,
October 17, 1859. }

SIR,—In reply to your communication of the 1st instant, I have to say, that the Collector of Customs at New York has this day been authorized to continue the publication of a schedule of the importation of drugs and chemicals into New York—the names of importers to be omitted.

I am very respectfully, HOWELL COBB,

Secretary of the Treasury.

To Samuel M. Colcord, Esq.,

President American Pharmaceutical Association.

The TREASURER will lay before you his report of the financial condition of the Association. For the past two years the receipts have not been sufficient to publish the Proceedings, and the printers have been obliged to wait until collections were made on the dues of the succeeding year, or the Treasurer has been obliged to borrow money to pay the bills. Owing principally to the economical management of the Executive Committee for the past year, the Treasurer is enabled to report the Association not now in debt.

The policy of increasing the amount of our annual contributions for the purpose of extending our publications, and awarding prizes for papers of merit, is a subject worthy your attention at this time. Should you decide to retain the present amount of two dollars as our annual contribution, and publish only for our own members, and public libraries, the benefits to our profession being confined more within ourselves, might operate as an inducement to membership; but, a more enlarged view would be to increase the amount and value of our publications by offering liberal prizes for meritorious articles, and a wider distribution of them.

Should the value of the Proceedings increase as it has done for two years past, the sale of the work ought to meet any deficiency in its publication. Of its sale the past year, the Executive Committee's report will give you the necessary information.

It is to be regretted that so many errors should have occurred in its publication—owing, chiefly, to imperfect manuscript: in one instance to derangement of type before printing. Doubtless some errors occur in our list of members, although very carefully revised. Omissions have heretofore been liable to occur in consequence of the roll being made up from the records and memorandums of the Secretary, Executive Committee and Treasurer.

Some course should be adopted by which only finished papers should be presented and go directly to the Publishing Committee at the close of the meeting.

If the movers of all resolutions, orders, motions and amendments would put them in writing, it would be a great assistance to the Secretary, and enable him to have an accurate record, *approved* for the Publishing Committee at the close of the meeting.

I can see no reason why our "Proceedings" should not be published within thirty days after adjournment.

The EXECUTIVE COMMITTEE will lay before you a report of their labors. The amount of time and care required by the Chairman of this Committee would seem to require the employment of some suitable person as an assistant in editing the "Proceedings;" but, as yet, no such expense has been incurred, and the amount of labor gratuitously performed by the Chairman of this Committee is deserving the warmest thanks of this Association; and any suggestions made by this Committee are deserving of great weight in your deliberations, as the actual working of the Association, during the recess, is mainly confined to them.

Next year will complete the first decade of our existence as an institution. I would recommend the appointment of some person to make a *general index* of all our previous publications, to be published with our next volume.

COMMITTEE ON THE PROGRESS OF PHARMACY.—It has occurred to me that the labors of this Committee cover so wide a field, that to divide its duties would give greater value to the result of its labors. I would not advise

to alter the construction of the Committee; but merely assign a separate portion to each member of the Committee, with the addition of others, if deemed necessary. Each to bring in a separate report,—the object sought being to get fuller and more concise reports upon each subject; collecting special information by personal effort, which would not be attempted, if to be collated by one individual of the committee.

ACT OF INCORPORATION.—The committee appointed to procure a charter, have paid attention to the subject. I am not aware of the nature of their report to you; but, from the information I have, I should infer that no act of incorporation granted to us by the General Government would be acceptable. Congress does not grant charters for such purposes,—leaving such matters for the action of individual States; unless, as legislating for the District of Columbia, we would take a local charter subject to the laws of the District, and having our head-quarters in Washington to a degree that would not be acceptable. In fact, the present sphere of our operations does not seem to require a charter; but, from the interest taken in our objects by all dealers in medicines, it seems to be only a question of time as to our future operations. One of our chief aims should be to give a uniform system of instruction throughout the country to those engaged in pharmaceutical pursuits, or as druggists; and, although our present organization is accomplishing much good—perhaps as much as can be expected at present—yet who believes that the scope of our efforts is to be confined to its present limits, when there is so much to accomplish, and so wide a field to cover? In process of time it is probable there will be made—if the time has not already arrived to make—some provision for our professional education, on a more diffusive, practical and uniform scale than at present exists. There are but few cities in the United States at present that can maintain a school of pharmacy, for various reasons,—one of the principal being a want of practical professors of pharmacy of sufficient influence to secure the attendance of a remunerative class; and, to some extent, the same exists with other professorships required in the same course of instruction. The want of such instruction is daily becoming more apparent, and the increasing interest manifested in pharmaceutical education seems to indicate a time not far distant when such schools will flourish. Strangers of good professional qualifications and repute would be more likely to succeed in such efforts than those educated in the immediate neighborhood of their classes.

Taking this view of the subject into consideration, a charter with educational powers conferred, from some State encouraging such efforts, would answer our purpose better than one from the General Government. We could then, in addition to encouraging local schools and colleges of pharmacy, organize a learned faculty on a uniform national basis; conferring on them the power of examining candidates and conferring degrees, granting diplomas and certificates of qualification. The appointment of professors could be made from the professors of any colleges or schools already

organized, and as many could be appointed as would be required from time to time. Lectures and courses of instruction prepared by them and approved could then be at the service of any number of pharmacutists or assistants who would properly organize to receive them, by paying only the expense of their delivery,—leaving it at their option to choose from any of the professors thus appointed, whose services could be secured at the terms mutually agreed upon. It would then become an object for men of talent to qualify themselves for the office and pursue it as a business, by having a sufficient number of such classes, especially if the professors were connected with laboratories, botanical gardens, &c.

Mr. Henry F. Fish, at our last meeting, proposed to have all our annual meetings held in New York, or New York, Boston, Baltimore, Philadelphia and Washington; having a permanent Secretary and headquarters in Washington, acting in some measure as a scientific association; but, as our settled policy has been to meet in as many different cities as is possible, to secure a full attendance, for the benefit, it may be to our profession in different localities, as well as to increase an extended influence, usefulness and roll of members, the proposition met with little or no favor. Had the proposition been understood to embrace the idea of establishing a central office, for the transaction of the business of the Association; increasing it by the collection and distribution of specimens, papers and general information in pharmaceutical matters; the resolution might have been more carefully considered, or referred to a committee. Should it ever be deemed advisable to establish such a central office and employ a permanent Secretary, I can see no good reason why our annual meetings may not be held in different places as at present,—unless the meeting should prove to be burdensome by reason of any impression existing that it is *necessary* to entertain the Association expensively. Should the practice of former years continue, of expensive complimentary banquets, it must operate against securing a united action of pharmacutists in some places where we should like to meet, and possibly render the meetings objectionable in many places. There is no reason why any place in which our meetings are held should provide more than suitable accommodations for the meetings alone; and on many accounts it would be preferable to reverse the custom, and if any entertainment is given, let it be done by the more numerous strangers to the local society, or simply a social gathering of our own members and invited guests, by those of us who have a taste for such kind of thing. In a quiet way, a social gathering may be productive of much good; acquaintances formed in this way often ripen into lasting friendship; and friendship and good-feeling created in the direct line of our occupation, cannot but operate to secure that concert of action for which we are banded together.

COMMITTEE ON HOME ADULTERATIONS.—In view of the importance of this Committee, and the interest manifested by the public outside of our profession in its reports, I deem it advisable to continue the Committee, and

make a division of the subject for separate reports. For instance, one division might embrace those articles of use as component parts of our daily food,—treating them as subjects of the *Materia Medica*, or on sanitary grounds; another division might embrace the preparations of the *Pharmacopœia*; still another, articles of *Materia Medica*.

The publication of the analysis of most articles as commonly found in commerce, together with a statement of what they should be, would certainly improve the standard of commercial quality, if only by comparison. To what extent it is advisable to publish the names of adulterating parties, I leave it for the committees to report and the Association to decide. The reports of these committees would be much more valuable if members would report cases and send samples for examination to this Committee, who have solicited and been anxious to receive them.

I cannot too strongly urge upon you the duty as well as *policy* of making no compromise with adulterations and adulterators. If there is any sin that should be exposed and punished, it is that which lurks unseen and works mischief and death upon innocent parties.

PHARMACOPŒIA.—At our last meeting, your Committee on the *Pharmacopœia* made their final report. The result of our labors was presented to the *Pharmacopœia* Convention and accepted; and, although as an Association we had no delegation in that body, it is gratifying to know that the apothecaries were well represented, and that a majority of the Committee, appointed or elected by the Convention for the revision of the United States *Pharmacopœia*, are members of this Association, and those whom we should consider most suitable for the purpose. It should, therefore, be considered and upheld as a fair expression of the views of pharmacutists throughout the United States, more especially as the committee of revision, I understand, are acting very harmoniously; and we may expect in due time a national work that should carry weight and authority with it sufficient to do away with all private formulæ for officinal preparations. It is to be hoped that the *Pharmacopœia* will be a work of fixed and available standards; and that all who follow the profession of pharmacy will strictly conform to it, that we may have one uniform standard throughout the country, no matter how great a change it may make in the preparations that have been previously in the market.

It is proposed to publish a large and cheap edition, to give it a wide circulation, and we may reasonably expect that this Association, in its individual capacity, will do its utmost to establish it as soon as published, as the only authority for preparations that have an official name.

SALE OF POISONS.—Owing to numerous cases of poisoning, exciting great public interest of late, the attention of legislation has been attracted to this subject, and it is surprising to notice how weak and inefficient have been all the laws to remedy the evil. The difficulty of framing a law to protect the community, accommodate the public, and at the same time be equitable to the dealer, is very great; and I have little confidence that any law could

be passed to protect the public against designed cases of poisoning. Yet, a judicious law, regulating the sale, might greatly reduce the number of accidents. Several States of the Union have passed laws relating to poisons, but none, that I have seen, are at all calculated to remedy the existing evils. It is to be regretted that our profession is so poorly represented in the law-making and law-executing power; inquests and juries have usually been alike deficient in pharmaceutical knowledge when such cases are under legal investigation. It would be well if we could secure a greater amount of legal influence as a profession, by paying more attention to the subject, as no class of business is so poorly represented in legislative assemblies as ours.

The great difficulty of legislating upon this subject, is the great number of articles, the large amount of sales, variety of their uses, the classes of people to whom they are sold, and the frequency of the sales. To some extent this subject has received the attention of this Association, but it has never been arranged in such shape as to facilitate efficient legislation, or a plan submitted for general adoption, to meet required wants in regulating the sale. I would therefore recommend referring this subject again to a committee, with instructions to report upon the best plan for the safe keeping, labelling, selling, dispensing and registering sales of poisons: also, to set forth specific principles on which to frame a suitable law for regulating the traffic, with a view to accommodate and protect the public, as well as pharmacutists and druggists.

SUNDAY TRADE.—The custom of pharmacutists transacting business the same number of hours on the Sabbath as on other days of the week, is at present receiving the attention of our profession in many of the larger cities, and it is generally conceded that six hours on the Sabbath would be sufficient time to supply all the medical wants of the community in ordinary times of health. It is due to a proper observance of the Sabbath that our stores should be closed during the usual church services; it is also proper to notice the fact that we have no more legal right to transact business or labor on Sunday than any other class of citizens. As one of the chief objects of our organization is to deliberate for those places that contain but few apothecaries, where there is consequently but little concert of action, I would recommend the adoption of a suitable resolution as the sense of this Association upon this subject, embodying proper recommendations for general adoption.

Members will find the preface to each volume of Proceedings, by the Executive Committee, to contain information, explanations and suggestions of interest up to the time of its publication, worthy the attentive consideration of each member.

Gentlemen, the subjects to which I have drawn your attention, are those which to me appear most important to present at this time, in compliance with the requirements of our Constitution; but permit me to make a few remarks on our vocation as dealers in drugs and medicines. Our roll of

members includes persons engaged in every department of this business, each of us anxious to contribute what he can for the general advancement of the whole; our ultimate object being the most honorable and surest way of securing to ourselves a just pecuniary reward, at the same time we are doing our utmost for the greatest benefit to the public. Our customers, or rather I may say the consumers, as a general thing, are unacquainted with the properties of the articles we are daily dealing out to them, and consequently rely upon us to protect them, and supply wants unlike any others of which they may be capable of judging for themselves; the commerce of our vocation is therefore unlike any other, inasmuch as the producer or vender is the party who knows the value of the article, and not the consumer; but the laws of commerce are the same in all commodities, and are regulated by the supply and demand.

Unquestionably our mission as an Association is to create a demand. On sanitary grounds the public good requires us to create a demand for pharmaceutical qualifications of a high grade of character, as well in morals, care and attention to business, as in practical attainments, in judgment and manipulation; this can best be done by informing the public as to the value of such services, and the danger of sustaining a dishonest and ignorant competition.

As to the medicinal articles in which we deal, it is clearly our duty to *create a demand* for pure medicines of reliable quality, as the only safe articles for our patrons to purchase; we should therefore strive to create a demand for this class of goods in preference to the medium and lower grades of quality. As traders, the temptations are as great in our profession as perhaps any other; the public does not seem to comprehend that commerce furnishes as many grades of quality in drugs as among other articles, and that competition in price is fully equal to competition in quality; that it is easier for the time to meet the former than the latter. Now the law which governs commerce, is to furnish any article for which there is a demand, and in my judgment those who deal in medicine prefer to furnish pure articles at the same profit; there would therefore arise no opposition to improvement in *quality* from *any* class of dealers, unless from adulterators, and those who delight to offer inducements in price at the expense of quality. The evils of such competition have to be met by all honest men under all circumstance.

But aside from our *duties* as guardians of the public health, and to our patrons who confide in us, is it *policy* for any of us to act otherwise in any transaction, than, by a conscientious discharge of duty, to protect our customers even when they do not appreciate it, to yield to no temptation for the sake of present gain, and to acquire a character for integrity as an investment equal to capital?

In many respects our characters as pharmacutists are, with the public, like those of physicians, in proportion to our integrity, judgment and ability; and a large portion of the community prefer to employ the services of a high-priced to a low-priced physioian or pharmacist.

I hold it true in all trading at retail, that the confidence of the community is fully equal to the capital invested ; but in our business, of the transactions on which we are judged, the unknown is as tenfold to the known and the penalties and emoluments are in like proportion, either in the breach or observance. The number of business hours required of us, our broken Sabbaths, our enervating summer toils, and nights of broken rest, warn us that no one man by personal application can be responsible for all that is done in a drug store, of even very moderate business; it must therefore be the store, as well as the proprietor, that is to merit and sustain a reputation, and the assistants come in for a far greater share of it than is generally supposed. Now let a young man on entering this business sit down and carefully calculate prospects and chances, lay out his plans for life, where he is to get his amusements, who are to be his friends, how manage for recreations, how perform his duties to society socially, how cultivate a taste for all that is true and beautiful ; in short, how reconcile his duties as an apothecary, with his necessities as a man. The way in which these questions are answered, and the path he strikes out to pursue, are what is to fix his destiny. If he looks upon his business as merely mechanical toil, seeking to do the least for the most money, and hourly longing for the next moment he can get to spend in amusement outside the business, dreading a return to it, avoiding and postponing those things which must be done, and ought never to be left undone, cultivating disgust for the daily routine of duty, and despising all non-sympathizers, sad must be his life to himself, and profitless to the community ; but should his heart be bent on a life of usefulness, a determination to explore and master the mystery and detail of the business, and acquire confidence to stand before his customers as one that can answer their wants equal to any competitor, and secure a list of personal friends from among them ; should he explore the sciences and investigate theories connected with his business, as amusements or pleasures, storing up knowledge for truth's sake, cultivate the acquaintance of those in similar pursuits, and make friends from among the stars of his own profession, and intimate acquaintance with the records of those denied a personal acquaintance ; society would seek him for his worth, the mortar would yield him pleasure, the graduate would be to him a cup of happiness, and the outside world would form to him a concentrated variety of the same happiness which other people enjoy. This view to many may seem all poetry ; but let any one look around and from the past judge of the future, who of those now in business, or retired, are the successful ones ; let him inquire of their past history, and compare it with their present standing in all respects in the community, and he will find that virtue brings its own sure reward ; that to plough deep, to sow good seed early, to weed out and prune well, are some of the best means to ensure a good harvest ; that to cultivate a taste for our profession for pleasure as well as profit, to make all acquaintances, amusements, recreations and associations, harmonize with our routine of business, to give proper attention in just proportion to

our religious and moral wants, our civil and political duties, all things necessary to our mental and physical development, our pecuniary interests, our duties to our patrons and our profession, are the most sure means to retain health, and acquire wealth and happiness; and last, though not least of promoting the objects and deserving the thanks of the American Pharmaceutical Association.

SAMUEL M. COLCORD.

On motion of W. A. Gellatly, the Address was accepted, and referred to the Business Committee for its action.

On motion of Mr. Buck, the Association adjourned till Wednesday morning at 9 o'clock.

Wednesday—Morning Session—September 12, 1860.

The Association was called to order by the President at or near the time adjourned to.

The minutes of yesterday were read and adopted.

The Executive Committee reported the following named persons as recommended for membership, viz :—

O. F. Cawthon, Mobile, Ala.	E. L. Johnson, New York.
C. F. G. Meyer, Fort Wayne, Ind.	John Lynam, Chelsea, Mass.
Peter D. Leys, Brooklyn, N. Y.	Edmund Bigelow, Springfield, Mass.
S. S. Hubbard, “	James E. McDaniel, Baltimore, Md.
Richard Forester, “	J. A. Wolf, ———, Pennsylvania.
George C. Leys, “	John McDonald, Brooklyn, N. Y.
Samuel J. Billings, New York.	Arthur Leitch, St. Louis, Mo.
Benj. F. Stacey, Charlestown, Mass.	C. H. Dalrymple, Morristown, N. J.
W. E. P. Baylis, Brooklyn, N. Y.	C. M. Whildon, Pittsfield, Mass.
William J. Watson, New York.	William J. Darbey, New York.
William M. Giles, “	Wm. G. Stephens, Yonkers, N. Y.
John Carle, Jr., “	Jas. E. Cunningham, Pittsburg, Pa.
Isaac M. Sands, “	H. M. Pettit, Pittsburg, Pa.
E. E. Knapp, Norwalk, Con.	Theodore Moitz, Pittsburg, Pa.
Jabez H. Hazard, New York.	Theodore Schumann, New York.
S. G. Welling, New Rochelle, N. Y.	Paul Balluff, Brooklyn, N. Y.
William E. Hagen, Troy, N. Y.	Otto Laist, New York.
Jesse Weaver, New York.	George G. Porter, New York.
George W. Southwick, New York.	George E. Sheils, “
John H. Pope, New Orleans, La.	William Ball, “
Richard J. Owens, Brooklyn, N. Y.	Henry Bower, Philadelphia, Pa.

A ballot was ordered, and Messrs. Laidley and Coddington, acting as tellers, reported the election of all the persons named in the list.

The following members, not present at the previous sitting, signed the register, viz :—

H. H. Burrington, Providence, R. I.	C. B. Guthrie, Memphis, Tenn.
Edward Parrish, Phila. Pa.	S. K. Norgrove, Pittsburg, Penn.
John M. Clark, Milledgeville, Geo.	C. L. Case, Brandon, Vt.
John G. Cook, Lewiston, Me.	E. E. Knapp, Norwalk, Ct.
John Jackson, Knoxville, Tenn.	John Carle, Jr., New York City.
B. F. Stacey, Charlestown, Mass.	Paul Balluff, Brooklyn, N. Y.
Fred. L. John, Phila., Pa.	W. B. Gardiner, New York City.
Charles H. Eggert, "	W. E. P. Baylis, Brooklyn, N. Y.
J. G. Wilbur, Boston, Mass.	John D. Dix, New York City.
A. E. Richards, Plaquemine, La.	William J. Watson, "
C. F. G. Collins, Beloit, Wis.	

(Continued at page 41.)

Mr. Carney, Chairman of the Executive Committee, stated that other names for membership had been reported, for some of which they had received no vouchers, and others had been objected to by some of the members of the Association. At the suggestion of Dr. Squibb, the names were directed to be held over by the Committee to obtain further information concerning them.

The Committee on Nominations now reported the following names for Officers for the ensuing year, viz :—

President,

HENRY T. KIERSTED, ... New York.

Vice Presidents,

1st. WILLIAM J. M. GORDON, ... Cincinnati.

2d. WILLIAM S. THOMPSON, ... Baltimore.

3d. THEODORE METCALF, ... Boston.

Recording Secretary,

JAMES T. SHINN, ... Philada.

Corresponding Secretary.

P. WENDOVER BEDFORD, ... New York.

Treasurer,

ASHEL BOYDEN, ... Boston.

Executive Committee,

WILLIAM PROCTER, Jr., ... Philada.

CHARLES A. TUFTS, ... Dover, N. H.

JAMES BALMER, ... Baltimore.

GEORGE W. WEYMAN, ... Pittsburg, Pa.

JAMES T. SHINN, ... Philada.

Committee on Progress of Pharmacy,

JOHN M. MAISCH,		Philada.
EDWARD S. WAYNE,		Cincinnati.
CHARLES T. CARNEY,		Boston.
JOHN MEAKIM,		New York.
P. WENDOVER BEDFORD,		New York.

Mr. Boyden expressed his wish to decline re-election to the office of Treasurer, on the ground of business and health not permitting; at the same time he thanked the Association for the honor conferred upon him by re-nomination.

On motion of Mr. Stratton, his resignation was accepted, and the thanks of the Association were voted for his past services.

The nomination for Treasurer being again referred to the Nominating Committee, they reported the name of HENRY HAVILAND, of New York.

A ballot was ordered for the officers as nominated. Messrs. Meakim, Laidley and Coddington, acting as tellers, reported the election successively of the President and Vice Presidents; when on motion of Edward Parrish, the President was requested to deposit a ballot for the remaining officers, whereupon the tellers reported their election.

The President elect not being present, Vice President Gordon then took the chair, and James T. Shinn assumed the Secretaryship.

On motion of John Meakim, of New York, the following resolution was adopted.

Resolved, That invitations to attend the sittings of the Association be tendered to the following gentlemen:—

Dr. Edward Delafield, President of the College of Physicians and Surgeons.

Dr. John W. Draper, President of the Medical Faculty of the University of New York.

Dr. John Watson, President of the Academy of Medicine.

The Professors and ex-Professors of the College of Pharmacy of the City of New York.

The Fellows of the Academy of Medicine.

The Members of the Pathological Society.

The Members of the New York County Medical Society.

On motion of Thomas S. Wiegand, it was unanimously

Resolved, That the thanks of this Association be voted to the retiring President and other active officers, for the able manner in which they have discharged their duties during the past year.

The report of the late Treasurer being called up, was read, as follows:—

Treasurer's Report for 1859—60.

To the American Pharmaceutical Association:

Your Treasurer, in reporting upon the financial condition of the Association, has the satisfaction of showing a small balance in the treasury, although fears were expressed at the close of our last meeting that a contribution would be asked in order to meet the increased demand for publishing nearly double the amount of matter of any former year, and the fact that a portion of the past year's receipts were used to defray a portion of the former year's expenses; but owing to the very economical management of your Executive Committee for the fiscal year just closed, no such contribution was asked for, the credit obtained of the printers, and about \$200 borrowed being sufficient to meet the exigency, which I am happy to say is already liquidated by the response of members to the Treasurer's circular.

The volume of Proceedings would make a much better appearance in larger type with more expense upon its publication, and it is probable that in future years so much economy will not be required; if we have our usual success, and increase of members the coming year, we can safely calculate our income at from twelve to fifteen hundred dollars as follows:

Dues not paid for the year 1855	-	-	-	\$32.00
Do. 1856	-	-	-	40.00
Do. 1857	-	-	-	68.00
Do. 1858	-	-	-	138.00
Do. 1859	-	-	-	356.00
Do. 1860	-	-	-	550.00
Estimate one hundred new members,-	-	-	-	200.00
“ for certificates,	-	-	-	150.00
“ for Proceedings sold,	-	-	-	300.00
				\$1834.00
Deducting the amount of all dues of '55, '56 '57, '58, '59.				634.00
				\$1200.00

As an amount exceeding any income not likely to come in, we shall have twelve hundred dollars as the least probable income for the ensuing year.

The annexed statement of account will furnish you with the receipt and disbursements of my treasury account to September 8th, 1860, with vouch-

ers accompanying duly approved. Some omissions in the published roll of members have occurred, which I have carefully endeavored to correct on the books of the Association, and the index to the ledger will now furnish a correct alphabetical roll, which, together with a carefully corrected list of new members by the Executive Committee, will furnish a complete list.

American Pharmaceutical Association in account with

ASHEL BOYDEN, Treasurer.

DR.

Rand and Avery's bill of printing and binding,	-	934.29
Proceedings, &c., filling certificates,	-	40.22
Sundry expenses as per ledger,	-	74.42
Balance of cash on hand,	-	80.89

\$1129.82

CR.

Cash received of former Treasurer,	-	231.13
Contributions from members as per ledger,	-	554.00
Cash received for certificates,	-	126.00
" " " Proceedings sold,	-	218.69

\$1129.82

Add error in addition as per book, p. 24, - - .50

\$1130.32

ASHEL BOYDEN, Treasurer.

On motion it was accepted, and referred to an auditing committee of three: Thomas Restieaux, Charles A. Junghanns and Dr. E. R. Squibb, were appointed by the Chair to that duty.

Edward Parrish, Chairman of the Committee on the Progress of Pharmacy, read that portion of the Report relating to Pharmaceutical Education and Literature, to the condition of the drug market, the revision of the Pharmacopœia and the Necrological notices, omitting the condensed records of discoveries in materia medica, pharmacy, organic chemistry, inorganic chemistry, and toxicology. (See page 65.)

On motion of S. M. Colcord, of Boston, the report was accepted, and referred to the Executive Committee with discretionary power.

Dr. Guthrie expressed his opinion that the report should be accepted, and left open for discussion until a later session, as members might wish to speak on some of the points treated.

Mr. Colcord was in favor of discussing it at once if members had any comments to offer.

Dr. Guthrie again urged a postponement of the adoption of the paper, but the suggestion was not agreed to.

John M. Maisch presented several numbers of Schweitzer's *Zeitschrift für Pharmacie*, sent in exchange for the Proceedings of the Association, and offered the following resolution, which was adopted :

Resolved, That the American Pharmaceutical Association acknowledge their obligation to Messrs. Schaeffer and Koradi, of Philadelphia, for gratuitously forwarding their exchanges with Germany and Liverpool for several years past.

William Procter, Jr., offered the following :

Resolved, That a committee of five be appointed to propose a list of questions for investigation, the ensuing year, and report at a future sitting.

The resolution was adopted, and, on motion, the following members appointed by the Chair as the committee: William Procter, Jr., Thomas S. Wiegand, Dr. E. R. Squibb, Charles A. Tufts and Frederick L. John.

Dr. Squibb requesting to be released from serving on the auditing committee, Thomas T. Green was appointed in his place.

On motion of George W. Weyman it was

Resolved, That a committee of five be appointed to examine the chemicals, drugs and other articles offered on exhibition to the Association, and report at a future sitting of this Convention.

George W. Weyman, Wm. Procter, Jr., S. M. Colcord, John Canavan and John Meakim were appointed by the Chair.

Mr. Procter was excused from service at his request, and Charles T. Carney appointed as chairman of the committee.

Wm. Procter, Jr. called the attention of the meeting to the following resolution adopted last year :

“Resolved, That in future meetings of the Association it will greatly tend to keep up the interest of the sessions if it be determined to make the reading of scientific papers proceed parallel with the other business.”

He suggested that the postponement of the reading of these papers to the later sessions would prevent many members from hearing them, and that they be proceeded with at once.

On motion of Dr. Squibb, the reading of scientific papers was

proceeded with, and the Secretary commenced reading out the questions in the order reported last year.

Query 1. In relation to "Indigenous Vesicating Agents," referred to Wm. H. Warner, was not replied to.

Query 2. Relative to Citric Acid, was answered by Charles T. Carney, to whom it had been referred. (See page 150.)

Query 3. Relative of Aconitia, received no answer; Prof. Grahame, to whom it was referred, having retired from Pharmaceutical pursuits.

Query 4. On the subject of the Production of Alcohol in the United States, was answered at a later hour of this sitting by F. Stearns, who had not arrived at this time.

Query 5. On the subject of the Varieties of Garlic, being called up, Prof. Procter informed the meeting that Dr. Thomas had engaged in the preparation of a paper in answer to the query, but that it had not come to hand.

On motion, it was resolved that Dr. Thomas's paper on Garlic, when received, be referred to the Executive Committee for publication in the Proceedings. (See page 178.)

Query 6. The answer to this query, on the preparation of Aloin, referred to Edward Parrish, was ready, but not present, and its reading was referred to a future sitting.

Query 7. The reply to the query on Sulphate of Ammonia was read by Charles Bullock. (See page 153.)

Query 8. Relative to Chamomile Flowers, referred to F. L. John, was not answered.

Query 9. On Arnica Flowers, referred to H. T. Cummings, received no reply.

Query 10. On Assafetida Plaster, was replied to by William Procter, Jr., and referred for publication. (See page 154.)

Query 11. On Atropia, from American Belladonna, was answered by the same gentleman, and referred. (See page 156.)

Query 12. Charles T. Carney informed the Association that Mr. Melvin had not replied to this query from his inability to procure the Japanese wax.

Query 13. On the Employment of Paraffin in Pharmacy, was answered by Charles T. Carney. (See page 163.)

Query 14. On the Carrageen production of New England, was answered by a paper from A. P. Melzar, of Boston, which was

read by Charles T. Carney, and referred. (See page 165.)

Query 15. Relative to Conium Seeds, was answered by Henry F. Fish. (See page 166.)

Query 16. On Saffron, to John D. Dix, and query 17 on Cubebs, referred to Prof. Thurber, and query 18 on Digitalin, to S. S. Garrigues, were not answered when called for.

Frederick Stearns being now present, was invited to read his paper, No. 4 of the list, on the production of Alcohol; it was accepted and referred for publication. (See page 160.)

At this stage of the proceedings, Mr. Parrish made the following remarks: "I think, Mr. President, that the several subjects that are reported upon should be discussed, each in its proper place. It is right to give such members as are conversant with different subjects a chance to express an opinion. I thought, for instance, that the subject of alcohol, as treated by Mr. Stearns, a great many of the members knew a good deal about. There was one question that occurred to me while our friend was reading his paper: he does not mention whether there is an article, called sweet spirits by the liquor dealers, as one of the productions that is most used among the derivitives of whisky. I have only lately become acquainted with the merits of sweet spirits. I think it is a great deal better form of alcohol for a great many purposes for which we employ alcohol, than the rectified spirit diluted with one-half water. I have understood that the liquor dealers don't like to sell the article, nor have it sold.

Mr. Carney. Is that "sweet spirits" which is otherwise known as deodorized alcohol, or pure spirit?

Mr. Parrish. It is not rectified by distillation; it is purified whisky.

Dr. Squibb. It is simply prepared by *leaching* the diluted spirit by passing it through coarsely-ground wood charcoal, arranged in layers on a false bottom in leach-tubs. This process frees it from fusel oil and renders it pure alcohol and water. It, however, takes up from the charcoal some alkaline impurities; after this it is re-distilled and becomes Cologne spirit.

Mr. Parrish. I think it is an article of value, being cheaper than highly rectified spirit, and answering a most excellent purpose for certain alcoholic preparations, such as now are extensively used; for instance, medicated cordials, elixirs, &c.

Mr. Gordon. It is sold by its specific gravity, and is called neutral sweet spirits. It is made almost expressly for the liquor dealers.

Mr. Colcord. We have an article with us that is called pure spirit, but I never heard the term sweet spirits before.

Mr. Guthrie. For what purpose is it used by liquor dealers?

Mr. Gordon. For the manufacture of imitation brandies and wines.

Mr. Parrish. We have noticed this particular difference between the diluted alcohol and this sweet neutral spirit. When we mix commercial alcohol and water together, the odor which is given off is disagreeable, owing to the fact that the alcohol is not perfectly pure. This is not the case when the sweet spirits is thus mixed; and besides, the liquors manufactured from it are much more agreeable than when made from the ordinary diluted alcohol of the same strength.

Mr. Stearns. It is generally understood that brandy spirits are made from common whisky, rectified after the manner explained by Dr. Squibb, increased in proof by repeated distillation.

Mr. Procter. Are there any experiments to prove that fusel oil is not present in the sweet spirits?

Mr. Parrish. Nothing, except that the peculiar odor of that substance is not present.

Dr. Squibb. The only means that I know of for purifying alcohol is that one mentioned. Some mix it with quick-lime, but without any advantage. The permanganate of soda is well known as a deodorizing agent.

Mr. Colcord remarked that there was a spirit sold by Mr. Brainerd, of New York, the mode of manufacture of which, he believed, was kept secret. He supposed it was the sweet spirits alluded to. It was proved as high as from 95 to 98 per cent., and the price was regulated by the amount of sweetening. He stated that Mr. B. claimed for this spirit four times the strength of the other, and that it would give a more persistent and better flavor. It was important to know whether or not this was true.

Mr. Parrish. There has lately been published a book, translated from the French of Paré Lacour, on the preparation of the different liquors which are sold and supposed to be imported. The book struck me as being in advance of anything I had seen written upon the subject before. I think one can manufacture, at an exceedingly low price, with the neutral sweet spirit, a brandy identical with that we buy from the Custom House stores. We buy adulterated liquors from across the water. Now, I don't think there is any great merit in having them imported; why not make them ourselves as well? When I say this, I must be understood to enquire whether we ought not to set to work to originate a liquor which we could use in place of brandy, and which, at the same time, should be officinal.

Mr. Procter asked Mr. Gordon, if any home brandy could be relied on?

Mr. Gordon. Longworth says that the genuine Catawba brandy is very scarce, and that it cannot be manufactured for less than from 8 to 10 dollars a gallon.

Dr. Squibb was of the opinion that the spurious brandy could be prevented from being brought into the country by proper custom-house regulations.

Dr. Guthrie. The real value of brandy, as recognized in the U. S.

Pharmacopœia, is a question which interests every druggist and physician. If the fact is notorious, as it seems to be, that brandy is not what it is said to be, even when it is made at home; that it is not what it is theoretically claimed to be; if these things are so, it seems to me of the utmost importance to have a report made upon the subject, in which these facts shall be embodied.

Dr. Squibb suggested that it might be kept out by proper inspection. This would be very well if we had the right kind of inspectors. I trust that this Association will appoint a committee who shall take some action upon that subject.

Mr. Colcord. When we were in Cincinnati, we visited the vineyards and cellars of that city, and it was then said (1854) that the Catawba wine was worth a dollar a gallon, and that brandy distilled from that wine would cost six dollars a gallon. The President of that Association assured us that it could not be made for less than that amount. Now, Catawba wine has advanced in price to \$1.50 a gallon, and Catawba brandy has been offered, pure, in large quantities, at \$1.50 per gallon. When it was offered to me at that price, I tried to elucidate the facts of the case from the vender. I told him of the impossibility of making such brandy at that price, yet, notwithstanding this, he stoutly maintained that it was pure. I am satisfied of the way in which that brandy is made. After the grapes are pressed, you have what is called the "marc" left; the seeds, pulp, skins and other parts of the grape. That pulp is taken and distilled, and there is either the spirit of grain whisky put into it, or else molasses or sugar, in order to obtain alcohol; and the "boquet" comes from the skins of the grape. There is enough of this in the market to furnish the "boquet" for a large quantity of brandy. This is, undoubtedly, the article which we are receiving as pure Catawba brandy. God knows what it is made of when it is not pure.

Mr. Gordon knew of a party in Kentucky who manufactured the spurious Catawba brandy and offered it for sale to Mr. Longworth. The agent would not take the responsibility of purchasing it, and so referred the matter to Mr. L., who said that he would be willing to buy it, provided the vender would take an oath as to its genuineness. Whereupon, the party retired and nothing more was heard of him; but meeting a countryman on the road, he made an agreement with him to the effect, that he should sell the liquor to Mr. Longworth for a premium of \$5.00. This he consented to do, and Mr. Longworth purchased the article.

On motion of Dr. Guthrie, the Committee appointed "to propose amendments to the Drug Law" in 1858, at the Washington meeting, and which did not report, was continued.

Mr. Procter presented to the Association, on behalf of Messrs. Bailliere Brothers, New York, a number of copies of their new weekly journal, "The American Medical Times," and their

catalogue of scientific works, which were accepted. When, on motion, adjourned to half-past three o'clock this afternoon.

Wednesday—Afternoon Session.

The meeting was called to order by the 1st Vice President, W. J. M. Gordon.

At the suggestion of the Business Committee, the resolution adopted last year in relation to the constitutional provision as to eligibility to membership, and the creation of a third class of associate members, was called up.

Mr. Parrish moved that a committee be appointed to mature this subject with reference to the future action of this Association. I will take occasion to say, continued he, that it might be very greatly to our advantage to have our Association increased in numbers. We have rather lost sight of that feature since we have started. We should have a systematic method of extending our membership, so as ultimately to embrace all the *reputable* druggists and apothecaries in the United States. I presume that *all* the druggists and apothecaries would have the same motives in joining us as those who have already enrolled themselves as members of this Association. There are thousands who would be glad to do it if the matter was properly brought before them. There is always a certain satisfaction in being enrolled as a member of some Association. The idea that presents itself to me is, that we ought to extend the membership. In England the Pharmaceutical Society enrolls all such druggists and apothecaries as come up to the standard of qualification, and it is considered essential by every respectable pharmacist to be a member of that body; it would be so with this Association, if we had it understood that we were going to embrace all the druggists that are eligible to membership. The result would be a large increase, in the first place, in our numbers, and, in the second place, in our annual income. We might then have a central office and a salaried officer, who should devote his time to the interests of this body, and thus take from the shoulders of our several committees a great amount of that kind of labor which we all know is so hard for them to do. Our worthy treasurer for instance, held the office for one year, and so arduous does he consider the duties that pertain to it, that he is compelled to offer in his resignation this year. All business matters should be given to a salaried officer, and then we should get along much better, and in reality do a great deal more work. There are a great many other things we might systematize; the business of adulterations might be referred to one person, to whom should be sent all those specimens that required analysis. Then again we would obtain immense influence, in reference

to our numbers, when we should come to demand any legislative action in our behalf.

Dr. Squibb. I am diametrically opposed to almost all that has been advanced by Mr. Parrish. I think, instead of opening the door wider, the time has in reality come when we should narrow it. We do acknowledge a qualification; there is a part of the Constitution that applies to it; but there is a certain qualification which we all know is necessary for any one to possess, who wishes to become a member. I think the simple fact of any person being able to pay \$2 on making application, is not a good reason why he should become a member, notwithstanding he may keep a pharmaceutical establishment. I think the establishment of a third order of members, the admission into our ranks of homœopathics, eclectics, &c. would do very great harm. I know it would drive me out of the Association. I am convinced that if we open the door wider and invite every one to join us, it would practically lessen the influence of this body. I would, of course, approve of a committee being appointed to take this matter into consideration, and report upon it, that the Association may discuss more intelligibly the merits of the proposition.

Mr. Parrish offered the following:—

Resolved, That a committee of five be appointed to mature a proposition to have a third order of members, for the consideration of the Association, to report at a future sitting.

Mr. Parrish. The action of this committee might depend a little upon the sentiment as expressed by the Association. I am not afraid of bringing into the Association reputable druggists, those not sold out to quackery; and moreover, I don't propose to do away with our present qualifications. I think on the other hand that it is of primary importance for each candidate to have suitable vouchers; but I maintain that any effort to cramp the Association in reference to numbers, is fatal to the grand object of its organization.

When the Constitution that is now in force was under discussion, and was about being adopted, the whole question was talked over. We had some members who were in favor of making it a simple matter of delegation. We soon saw that this view considered in a practical light would never amount to anything, that we should then never have a sufficient number to make any impression nor execute any large amount of work, and so we adopted the present course. It is now, I am happy to say, open to all who shall prove themselves eligible for membership.

Mr. Stearns did not see the necessity of making any amendment to the Constitution; he thought that the door was opened wide enough, and he very much preferred to have the matter rest as it was.

Mr. Colcord, of Boston, was also of the same opinion.

The resolution was then put and lost.

Mr. John D. Dix being present, query 16 was then called for, to which that gentleman made a verbal report, as follows:—

“I owe to the Association an apology, in the first place, for taking upon myself to do that which I have since found I could not do. I should very much dislike to present a paper that would not cover the whole ground, so I prefer to make a verbal report; for the reason, that in the crowd of my engagements, and the utter exhaustion that attends them, I have found it impossible to do otherwise. At the time query 23d was referred to me, I thought I could get at all the necessary information without difficulty, and thus be enabled to give something more than the mere statistical information obtainable at the Custom House. But I found on questioning those of my friends who were directly engaged in the foreign manufacture, that they were very shy of giving me any information. In regard to the subject of Spanish saffron, in query 16, also referred to me, I can only say that I have at the last moment, gotten up some samples of the various kinds, offered in the market. The box marked A, contains the true and legitimate article, and with a glance any one can readily discover its genuineness from the shape of the pistils. The specimen is not handsome for the reason that the crop this year was poor. It is the same that has been imported and sold in this city at \$18 a pound, but it now costs \$22, simply to import it. The sample B, is also true saffron, but more than one-half, perhaps three-fourths of its virtue has been extracted, then dried up and sold as the true article. This was imported into Philadelphia, and there is a considerable quantity there remaining. It bears all the characteristics of the true saffron except the strength. Sample C has a large proportion of true saffron, is sold in this market, and imported steadily as the true article. It is adulterated with the petals of the *Calendula* (marigold flowers,) these are saturated with Tinct. Saffron, and afterwards dried. Sample D is *Calendula* entire, and is sold here from \$3 to \$5 per pound. This is also saturated in Tinct. Saffron, and is sold largely in this city, because druggists will have Spanish saffron at a very small proportion of the cost of importing it. I have never known true saffron to be as dear as it was last year.

The resolution of Mr. Fish, held over from last year, in relation to holding our annual sessions in New York, Philadelphia, Boston, Baltimore and Washington successively, and to the appointment of a permanent Secretary at Washington, was brought forward by the Business Committee, but on a vote being taken was lost.

The Chairman of the Business Committee then offered the following:

Resolved, That a suitable member be appointed by the Chair to prepare a full copious Index of the entire Proceedings of the Association, including the volume of the present session, for publication in the tenth volume.

Resolved, That a full set of the Proceedings be placed at the disposal of such member, to be retained by him after the labor shall have been performed.

The resolutions were adopted, and Thomas S. Wiegand, of Philadelphia, was appointed by the Chair, to that duty.

The Chairman of the Executive Committee offered the following names as candidates for membership, viz :

John C. Mattern, Pittsburg, Pa.

Jacob F. Haehnlen, Pittsburg, Pa.

Robert Thompson, Bloomington, Illinois.

Warren B. Gardiner, New York City.

George M. Wheeler, Detroit, Mich.

William Johnston, Detroit, Mich.

Gustav Ramsperger, New York City.

On a ballot being held, they were all elected.

The Business Committee now called up for consideration the following resolution of Alfred B. Taylor, of last year, viz :

“ *Whereas*, The generous hospitality of the members of this Association, resident in the different localities at which meetings have been heretofore held, has been extended into an habitual degree of extravagance, which has occasioned uneasiness among some members of the Association, especially in view of the migratory character contemplated in its organization ; therefore,

Resolved, That we would respectfully deprecate such demonstrations, and hope that hereafter they may be discontinued, believing, that by their continuance we shall be prevented from meeting in many places where otherwise we might assemble with very great advantage to ourselves, individually, as well as to the places visited and the Association.”

The subject was discussed by Messrs. Maisch, Stratton, Stearns, Wiegand, and others, and on a vote being taken, the resolution was lost.

Franklin K. Phillips, of Boston, and William T. S. Cardy of Chelsea, having retired from business, sent in their resignations, which were accepted by the Association.

Frederick Stearns, of Detroit, brought forward the subject of the Certificate of Membership :

Mr. Stearns thought that the certificate of membership for the Association was hardly worthy of it, and hoped that something better would be furnished.

Mr. Colcord remarked that any action on that suggestion was hardly called for. It was time enough to take up that matter when the Association should find it necessary to grant a certificate of qualification—a diploma—to those who chose to compete for it. He thought this could be done in a couple of years, and then it would be worth while to get up a new design.

Dr. Squibb heartily approved of the suggestion of Mr. Colcord.

Mr. Stearns then offered the following:

Resolved, That, as the certificate of membership of this Association is not considered appropriate in point of artistic execution, a committee of three be appointed by the Chair to invite designs from artists for the purpose; said committee being instructed to draw upon the Treasurer for dollars to pay the necessary expenses, and report results at the next Annual Meeting.

After a little discussion relating to the propriety of adopting the resolution, on motion of Mr. Colcord, it was laid over until the next meeting.

The reading of scientific papers being in order, the answer to Query No. 6, on Aloin, was now read by Edward Parrish. (See page 162.)

Query 19. This query, relative to the culture of *Elaterium*, was not answered by Henry A. Tilden, owing to his inability to get the seed in time for the proper season of growth.

Query 20. Relative to *Ergotized Maize*, was not replied to by Prof. Thurber.

Query 21. Relative to a test for *Extractum Cannabis*, was not answered by Edward Parrish.

Mr. Maisch said: I recollect, a couple of years ago, seeing several papers upon that subject in various French and German journals. There seems to be no test found, except the internal administration of the drug. There have been a large number of experiments made by Prof. Schroff, who relates several very interesting and instructive cases. I can call to mind one of these particularly: He gave one of his students, upon whom he experimented, and who was not readily influenced by it, a quantity of the article which had just been received from some part of the East Indies. The usual dose was given, but it exerted such an unfavorable influence upon the subject, that all the medical faculty of the school were called together, fearing that he would die. By dint of great exertions, however, he recovered. Mr. M. stated that, after all, the only way to get at the proper dose, was to commence with a small dose in every fresh lot, until the desired effect was produced.

Query 22. On *Gillenia*, offered for general acceptance, received no answer.

Query 23. As has been previously stated at page 28, was not answered for reasons there given.

Query 24. On the balsamic nature of Guaiac, was answered by William Procter, Jr. (See page 167.)

Query 25. On the changes which spontaneously occur in the officinal Ethereal Oil, and the best means of retarding them, was answered in a paper, illustrated with various specimens of the heavy oil of wine, by Dr. Edward R. Squibb, of New York. (See page 146.)

Query 26. Relative to the Salts of Morphia, was not answered by Dr. Squibb, owing to unavoidable circumstances, and was continued for next year.

Query 28. On Krameria, was not answered by Prof. Thurber.

Queries 29, 30, 31. Answers were stated to be ready, but the papers were not present, and were postponed till to-morrow.

Query 32. Was not answered by Mr. Cushman.

Query 33. Was not replied to by Dr. Battley.

Dr. E. R. Squibb extended a courteous invitation to the members to visit his laboratory at 149 Furman street, Brooklyn.

A motion of Edward Parrish that the subject of the next place of meeting be taken up at 11 o'clock to-morrow, was adopted.

The Chairman of the Committee, on subjects for investigation, invited every member who felt disposed to take a subject, to hand in his name to the committee, with the subject chosen.

On motion, adjourned to 9½ o'clock to-morrow morning.

Thursday—Morning Session, Sept. 13th.

The Association was called to order by the President, Henry T. Kiersted, who, on taking the Chair, made the following brief address:

Gentlemen,—In calling the meeting to order this morning, I beg leave to render my sincere acknowledgments for the very unexpected honor which the Association have done me, by electing me to preside over their deliberations.

I say "unexpected," because I was under the impression that some one of my more worthy brethren would have been selected for that station. At the same time, I am free to confess a deep sense of gratification at being thus complimented by this body.

Gentlemen—At a time when sectional strife and jealousy has sown the seed of discord in almost every wide-spread organization; when not only political, but even religious questions have been embittered by mutual dis-

trust and suspicion—it has been eminently gratifying in such times to witness the dignified indifference with which this scientific body has “pursued the even tenor of its way.” No clamor of demagogues has found an echo here. No factious whisper has ever disturbed your harmony. With true patriotism and philanthropy you have met year after year, from North and South, from East and West, to discuss, like brothers, questions involving the common good of all. And those of you, who like myself have turned with feelings of melancholy from the spectacle of warring sections, will appreciate the pride with which I respond to your flattering tribute.

May future years confirm the precedent you have so well established; and demonstrate that, where men’s hearts are right, there may always be found some common ground on which patriots from every section may stand together without a sacrifice of right or dignity.

The minutes of the last session were then read, amended and adopted.

The Executive Committee proposed the following names as candidates for membership:

Victor Heydenreich, Brooklyn, New York.

Augustine Presinger, New York city, New York.

George Blinkhorn, Rock Island, Illinois.

Thomas R. Coombe, Philadelphia, Pennsylvania.

A ballot was ordered, and Messrs. Cushman and Coddington acting as tellers reported their election.

The President stated that the business in order was the reading of the queries.

Evan T. Ellis to whom was referred query No. 31, relative to commercial varieties of arrow root, read some notes in answer thereto, and exhibited various samples of arrow root, stating that he had not had the opportunity to investigate the subject fully.

On motion, the subject was continued to Mr. Ellis for next year.

A letter was read from Prof. R. Ogden Doremus, dean of the faculty of the New York Medical College, dated August 22d, tendering the use of their buildings for the meetings of the Association.

On motion of S. M. Colcord, the communication was accepted, and the thanks of the Association tendered to the New York Medical College for their courteous offer.

The reading of the scientific papers was continued.

Queries 34 and 35 were deferred, as Mr. Fish was not present.

Query 36. On the products of the distillation of bituminous coal and allied substances, referred to W. H. Whitmore, of Boston, was called up.

Mr. Parrish. I have a letter from Mr. Whitmore, written to me, which if the chairman please I will read—or a portion of it—in order to explain circumstances which Prof. Procter will make more manifest.

Mr. Parrish read from the letter of Mr. Whitmore.

It stated that he had prepared a report on the subject assigned him last year. Finding some six weeks ago that he should not probably be able to attend the convention, after some consideration and consultation, he decided to print his ideas on the matter, and ask it to be received in that form to be distributed to the members of the convention. Therefore, he had sent 300 copies directed to their care at University Building to meet them there. He should wait the approval of the convention before giving away any of them; and the copies sent were at their disposal to be distributed among members of the Association; though if the convention declined to receive the address in printed form, nothing need be said, and he would keep the package.

Mr. Procter. I will only remark that here is a copy of the pamphlet alluded to, and it becomes a question with the Association whether they will receive it in this form.

Mr. Parrish. The only objection urged against this report is the fact that it is printed. To the report there are also appended certain other matters which would not be likely to be printed in the Proceedings, if sent as a part of his report; and in order to understand his report, these other matters seem to be necessary, so that it becomes a question what we shall do with it.

It is rendered bulky by the introduction of a number of quotations or extracts from other works, which we might not wish to publish.

Mr. Procter. It is a subject which must be disposed of one way or the other. The question is brought before us by the letter. It is proper for the Association to be asked whether they will receive the report in print—it occupies about five pamphlet pages—and then if they will accept this appended matter, which consists of a Patent to James Young, and Dr. Storer's history of the manufacture of Paraffine Oils, in a Review of Dr. Antisell's work on Photogenic Oils, &c. The question is, will you receive these and publish them?

Mr. Stearns. Are references made to the appended articles?

Mr. Procter. Yes, sir.

Mr. Stearns. I move that it be referred to the Executive Committee with power.

Mr. Procter. Mr. Whitmore asked permission to report on this subject and it was granted him, and I see no impropriety in having it read.

Dr. Squibb. I would amend that it be read first.

The amendment being carried, Mr. Procter read the original portion of the paper.

Mr. Colcord. I do not see that that report has anything to do with the druggist's business any more than the manufacture of cotton cloth. I amend that it be accepted, and filed with the Secretary's minutes.

Dr. Squibb. I do not agree with Mr. Colcord. It is a report on a subject appointed by this Association, and referred to this gentleman. I would accept it and publish it in the Proceedings; the information in it is certainly interesting.

Mr. Bullock. The course proposed by Mr. Colcord is not often pursued by us. We have generally referred all papers to the Executive Committee, except in one or two cases in which we have ordered them published. If we vary from this rule, it will be a marked course with this paper, and I should like the course adopted suggested by Mr. Stearns.

Mr. Colcord. It would be a dangerous precedent to accept and refer a report which has been published and distributed.

Mr. Parrish. It has not been distributed—I have no feeling about the matter. I read from the letter that it is not distributed.

Mr. Procter. The objection of Mr. Colcord, that it does not refer to our business, I think is answered by the fact that the question was given out by the Association to the gentleman.

Mr. Parrish. I would remark, that I think it is a very great advantage to have things previously printed; and I should be in favor of our reports being previously printed. For instance, our Report on the Progress of Pharmacy. It would have facilitated matters prodigiously in getting out the Proceedings, if this course had been pursued. I think it is a good thing to have a paper printed—it greatly facilitates its reading.

Mr. Colcord. My opinion of the paper is that it is intended as an advertisement and to be referred to as an endorsement by this Association. I have no feeling about the matter; I might make an explanation about it. This gentleman wanted to address the Association last year. He was told if he wanted to say anything about coal oil he might write a paper.

Mr. Procter. I expected from the gentleman a more thorough and logical investigation of the subject, founded on scientific results of his own production, but I must say that I think the paper a very meagre affair.

Mr. Stearns. Then I withdraw my motion to accept.

Dr. Squibb. I disagree with Mr. Parrish about the previous printing of reports. I should be sorry to see such precedents adopted. The single copy presented here is all that we want, until we have given authority for its publication. It is a strong objection to this report that it has been printed. It has been through many hands in the process. Other copies may have been printed without his knowledge.

Mr. Parrish. I only mean that the Executive Committee might so far anticipate the convention, as to print documents beforehand.

Dr. Squibb. I think it would be unadvisable, before the Association hears them.

Mr. Parrish. The Association refers things every day to the Committee in this manner. The Progress of Pharmacy Report was not all read, but referred to the Executive Committee. There may be many objectionable things in it.

Dr. Squibb. We have confidence in the Committee.

Mr. Parrish. You would have the same confidence in the case of their printing any papers beforehand.

A motion was made to lay the report on the table.

Mr. Colcord. I should prefer not to see that report laid on the table. I object to laying it on the table. I do not wish to say too much—I feel sensitive about it.—I know the parties there, and I should hope that the report would be accepted, and filed with the Secretary's minutes.

Mr. Parrish. I am opposed to laying it on the table; it would be an unfair thing. We really know nothing about this being used as an advertisement. We asked this gentleman to send a report; now we lay it on the table. Why? Because he has printed it?

Dr. Guthrie. I move to amend, that the report be accepted and filed in the papers of the Association. I wish to say simply this: As I understand the matter, it will not be impossible—it is not improbable that it may occur to us hereafter to seek for information outside of our corporate members. But if it is known that we have referred any subject, whether trivial or great, to a party who has taken the trouble to make report on it, probably to the best of his ability, though it may be meagre, and has furnished the Association with that report in accordance with its request; and when the simple dictates of courtesy between gentlemen should compel us to accept the labor, unless there is something absolutely wrong in it, yet, then, we have laid it on the table; would any one else subject himself to similar treatment? If we receive it and file it with the papers of the Association, it does not follow that we publish it. I should dislike that a report which had been furnished at our request, should be treated with the silent contempt which laying on the table would indicate. I therefore amend, that the report be accepted, and filed among the papers of the Secretary.

Dr. Guthrie's amendment was adopted, and the paper of Mr. Whitmore directed to be placed on file.

The time fixed yesterday for discussing the subject of the next place of meeting having arrived, a motion was made by William J. M. Gordon that the next annual meeting be held in Cincinnati.

Mr. Cushman read a letter, signed by several officers of the St. Louis Pharmaceutical Association, inviting the Association to

hold its next meeting in St. Louis, and giving reasons why none of the delegates were able to be present at this meeting. They also suggested that it was the earnest wish of the St. Louis Association that their city might be selected as the next place of meeting.

Mr. Gordon said that if the sense of the Association was different, he would not insist upon his motion, but he was exceedingly anxious that the next meeting be held somewhere in the West. The Pharmacutists of Cincinnati would be very glad to have them meet in that city, and as there was no member from St. Louis here, it was questionable as to the policy of meeting there.

Mr. A. E. Richards, of Plaquemine, La., said—I would ask, and I trust the Association will decide on meeting in St. Louis. We have met in Cincinnati before, and I hope for the next year you will decide on St. Louis. It will draw out greater interest, and the objects of the Association will be better understood in that part of the country, and the standard will be elevated. You have met in all the large cities of the East, and now you should visit the West, and by this means I trust that the Association may be encouraged, and it will be a great benefit to all. As I am from the South-West, I would ask you to meet in New Orleans, but I know that it is almost impracticable on account of the sickness generally prevailing there. There is great exercise for talent there in our profession, and there is much talent there that would make your meetings interesting. They would like very much to attend your meetings, but under the peculiar circumstances in which they are placed, it is almost impossible for them to attend at this season of the year. The city is about this time very sickly, especially if there is any epidemic raging; and I suppose that the members of this Association, notwithstanding the potency of drugs, would hardly like to put their bodies in the way of disease. The nearest place to us which would be acceptable, on account of its health, to you, is St. Louis; and to this place I hope that the Association will adjourn.

Dr. C. B. Guthrie. I believe there was a sort of an understanding last year that we should go next to St. Louis. As the next meeting of the Medical Association is in Chicago, and the next meeting of the Sanitary Convention, in May next, is in Cincinnati, let us go a little further west with the American Pharmaceutical Association, and bring up the rear with a meeting in St. Louis. I know somewhat of these St. Louis men, and I think we shall get a warm and hearty reception. I know that when the American Medical Association met there we had a good time, and I have no doubt that the cities about there, with that town just below there—I have still a lingering affection for western cities—that town of Louisville, and those other thousands of small villages, like Chicago and Detroit, for instance, and other places; they, I think, would send delegations that would make the meeting at St. Louis decidedly a success, and I have no doubt that our

friends at the South—down in that region where they get the yellow fever occasionally—might add to our number, and St. Louis being only thirty two hours from New Orleans, we might get some of those New Orleans people to come and give a look at us. I know what the hospitality of the St. Louis people is; and we have been down to Brother Gordon's place once, let us now go a little further West. I should be decidedly in favor of going to St. Louis.

Mr. Gordon. I am only anxious that the Association should meet somewhere in the West, and that seems to be fully understood and settled, and now the only question that rises in my mind is whether we would get a better attendance from the East, in St. Louis or Cincinnati. I should be very glad to have you meet in our place, but I am perfectly willing to withdraw my motion in favor of the expression of the meeting.

Mr. Colcord thought that perhaps the meeting had better reserve their decision until to-morrow.

Mr. Cushman said, the only objection would be that many members would be gone to-morrow.

Mr. Gordon thought they might as well take a vote then as at any other time.

Mr. Parrish. I have thought that the Association has settled down to the conclusion that the place will be St. Louis; at least that has been the general talk among the members.

Mr. Richards. I trust that we shall ensure a larger attendance at St. Louis than at any other place West. The large towns around there will certainly send delegations. The matter as to distance between Cincinnati and St. Louis will not be much. I hope that the members will vote for St. Louis. There is no delegate from St. Louis here, but I know you will receive a cordial reception there, and we shall awake a new interest in our cause in the West.

After this expression of sentiment, the motion of Mr. Gordon was amended by the substitution of the words "St. Louis" for "Cincinnati," and was carried unanimously in the following resolution.

Resolved, That the next annual meeting of the American Pharmaceutical Association, shall be held in the city of St. Louis.

The time of holding the meeting was now called up for decision.

Mr. Procter. As it takes some days to get to St. Louis, even in the present age of fast travelling, would it not be better to place the time a little earlier than the second Tuesday of September? Some of us have business after that time which cannot be set aside.

Mr. Stearns. I think the extremely hot weather at St. Louis would indicate that we should choose a later time rather than an earlier.

Mr. Procter. That would exclude me, most certainly. If the time was placed later than at present, it would be impossible for me to be there. But, perhaps, that ought not to influence the Association.

Mr. Colcord. I wish to make some remarks about the question of time, and it seems to rest about here—if each College of Pharmacy will consider it, if we should go there in very small numbers it would be an injury to us and to them, and they would probably be disgusted with it. Now, if we should fix it at about the time of our small vacations, for some of us do get them, though we are druggists; if we could take this time and go out to St. Louis, we might get up a great meeting there, and I should like to see it fixed at that time; in the earlier autumn, when we could get up an excursion party and go in good numbers and have a good meeting, it will be some benefit to the cause. There would be an objection to going too early.

Mr. Parrish. I would like to ask the western men in regard to health at that period of the year. If they cannot leave this month to come to our Convention, it looks as if it would not be prudent for us to go there. I was just going to remark, that at the meeting in Cincinnati, which many of us would have been very glad to attend, there were but few of us there, because it was fixed too early in the season.

Mr. Gordon. That year was an exception. Every part of the West was unhealthy at that time. I think it would make but little difference between the middle or the last of August.

Mr. Colcord. I think that this question of sickness in this Association is a superfluous piece of business. The other day I was riding on the platform of a horse-car, when a lady of very delicate and refined appearance stepped on the car, and I made room for her, and motioned her to step inside and take a seat; "Oh, no," she said, "I can stand up, you are a feeble man." (Laughter.) Feeble as I am, I have no fear of going to St. Louis. However, I think there is some importance attached to the time of meeting. Individually, it would suit me better to go there in August. I have been there and found it endurable, and for one I have no fear. If there should be a season there when cholera was pervading all portions of the United States, every one would prefer to remain at home. But at such a season as the present there could be no possible danger in going to St. Louis any more than in coming to New York, and I like the idea of choosing an earlier time, so that an excursion could be got up, which might be made an exceedingly pleasant affair. I should prefer the time to be as early as the last week of August. If it is cool elsewhere, it will be cool there; if it is hot elsewhere, it will be hot there; you have got to depend on the temperature of the weather as you do anywhere else. I think there would be a larger delegation there in August than in any other month.

On motion of Mr. Gordon the following resolution was then put and carried:

Resolved, That the next session of this Association be held on the fourth Wednesday in August, at 3 o'clock, P. M.

Frederick Stearns offered the following :

Resolved, That a committee of nine members be appointed to correspond with the leading pharmacutists of the western cities, inviting their attendance at the next annual meeting in St. Louis, and if possible to organize excursion parties to start from the Atlantic cities for the same purpose.

After a free and favorable expression of opinion by the members, it was adopted.

On motion, it was resolved that when we adjourn, we adjourn to meet this afternoon at half-past three o'clock.

The reading of scientific papers was again resumed.

Query 37. On the essential oil of Sassafras, referred to A. P. Sharp, of Baltimore, was not answered.

Mr. Parrish read a letter from Mr. Sharp, saying that his time had been occupied this year, that he had not had opportunity to pay any attention to the cause of Pharmacy. He had, however, commenced his report on this subject, and if the theme was continued to him, he would endeavor to give a full report next year.

On motion, the subject was continued to Mr. Sharp.

Query 38. On Pink Root and Senega, was continued to L. F. Dohme for another year.

Query 39. On the American species of Cantharis. A letter was read from F. Chapman Hill, to whom this query was referred, giving satisfactory reasons for not having replied to it, and asking for its continuance to him for next year, which was granted.

Queries 40 and 41 received no reply, and were passed by.

Query 43. Dr. Squibb to whom this query was referred, made a verbal reply, based on his experience, but he had not been able to produce a form of apparatus that he felt satisfied to describe and figure for the Association.

Query 44. In regard to the best form of pharmaceutical still for the apothecary, was continued to Dr. Squibb for another year.

Query 29. On Lupulin and Hops, was now read by Charles A. Tufts, and referred for publication. (See page 171.)

The Executive Committee now reported the following names as candidates for membership, viz.:

Giles D. Simms, of Washington, D. C.

George Buck, of Chicago, Illinois.

Abram Alberger, Jr., Philadelphia, Pa.

George W. Mowbray, New York city, New York.

A ballot was ordered, and the gentlemen were all declared to be elected.

Query 27. On the depreciation of Smyrna Opium, was answered by P. Wendover Bedford. Interesting comments were made on this subject by Dr. Squibb, Edward Parrish, and others.

Query 42. On Theobroma Cacao, was answered in an interesting paper by Dr. Donnelly, describing the history, botany, and culture of Cacao, to be illustrated with an engraving.

On motion, the paper was accepted by the Association, and referred to the Executive Committee for publication. (See page 188.)

The following additional members signed the register, either during this or the subsequent sittings, and are all presented here together, for convenience:—

Lester S. Hubbard, Brooklyn, N. Y.	William Ball, New York City.
C. Shivers, Phila., Pa.	George M. Mowbray, “
G. W. De la Vergne, N. York City.	Augustine Presinger, “
Frederick Stearns, Detroit, Mich.	Geo. W. Southwick, “
E. Donnelly, Phila., Pa.	Richard Forester, Brooklyn, N. Y.
Matthew F. Ash, Jackson, Miss.	Peter D. Leys, “ “
Charles A. Heinitch, Lancaster, Pa.	George C. Leys, “ “
Evan T. Ellis, Phila. Pa.	Wm. H. Page, “ “
Wm. M. Somerville, N. York City.	Otto Laist, New York City.
F. V. Heydenreich, Brooklyn, N. Y.	Th. Schumann, “
Henry Q. Mack, New York City.	Gustav Ramsperger, “
J. Lindley Pyle, Brooklyn, N. Y.	

On motion, adjourned.

Thursday—Afternoon Session.

The meeting was called to order by President Kiersted.

Query 34. On the best method of keeping camphor in the form of powder, was answered by a paper from Henry F. Fish, who presented a sample of the powdered camphor. (See page 177.)

The President announced the following gentlemen as constituting the Committee of nine, called for by the resolution of Frederick Stearns, in relation to obtaining a larger attendance at our next annual meeting:—

S. M. Colcord, Boston,	F. Stearns, Detroit,
Edward Parrish, Philadelphia,	Wm. J. M. Gordon, Cincinnati,
E. O. Gale, Chicago,	John Thomson, Sumter, S. C.,
Geo. W. Weyman, Pittsburgh,	W. H. Peabody, Buffalo, N. Y.
John Meakim, New York,	

Query 35. On the Guarana of Brazil. Henry F. Fish reported that he had not been able to obtain guarana in time and in sufficient quantity to prepare his essay satisfactorily, and asked to read an essay on "Coca" instead, as an analogous subject. This being approved, he read the paper, which was referred to the Executive Committee.

Volunteer papers were now called up by the Business Committee.

Dr. Wilson H. Pile, of Philadelphia, read a paper on the Dicas Liverpool hydrometer, an instrument for ascertaining the proof of alcohol, and exhibited one of the instruments to the meeting. The paper was accompanied by two valuable tables, and was referred to the Executive Committee. (See page 216.)

John Faber, of New York, read an interesting paper on "Manufacturing Pharmacy," as it might be developed in the apothecary's store. The views given in the essay were advocated by Dr. Squibb, Edward Parrish, and others. (See page 210.)

Dr. Squibb. I have listened with great gratification to that paper. The suggestion that a pharmacist should prepare his own preparations, I think is a step in the right direction. I do not think any pharmacist has a right to buy his preparations, and sell them without knowing what they contain, when they can be prepared in his own establishment. We want an available means of educating pharmacists in this country. Our Colleges of Pharmacy cannot do all that is needed in this direction. If every store could be converted into a school for the education of young men in this art, as a necessary branch of their business, it would lead to a full knowledge of the subject, and would awaken an interest in it as has never been known.

Mr. Parrish. I fully concur with Dr. Squibb in these opinions. We take lads into our stores, to learn the business. Their parents bring them there to learn the business. I think it is the duty of every apothecary to teach his young men the business, not merely in the dispensing part behind the counter, but in the manufacturing department, as far as practicable; and I feel like thanking the gentleman for the paper he has read here on the subject.

Mr. Stearns. I heartily endorse the reading of these papers. It seems to me that there is a part of our business which is being taken away from us somewhat, and that is the manufacture of fancy articles. There is a large list that are being absorbed by large manufacturers. There is no pharmacist doing a business above five thousand dollars a year, but what can afford to manufacture these things himself. Information on the subject is

easily obtained, and the cost of getting up each item is very little, providing it is done in an economical sort of way; and yet, throughout the land you will find the shelves of our pharmacutists occupied by nine-tenths of foreign manufactures. It is quite an important branch, so far as temporary profits are concerned, in the business, and well worth our consideration.

Dr. Squibb. One thing more, sir, in regard to the reading of such papers, and their tendency now; it is becoming fashionable to use fancy articles manufactured by other manufacturers, and not only that, but French manufactures; and we have large importations of sugar-coated pills and fluid extracts, and souvenirs, and all that sort of thing. This is manifestly in the wrong direction—it is reducing pharmacy to a mere trade. The clerk who stands behind the desk or counter in a grocery store is just as responsible for the article he sells you as the man who sells you a box of those sugar-coated pills. I do not wish to impugn the motives of the makers of these pills, &c., but I wish to show you what will be the result of this practice. It takes away all the dignity of your profession, and it becomes no more than any other trade. I am glad to see this subject brought up, and I hope this Association will express itself in the matter.

The Committee appointed to audit the Treasurer's account, reported that they had discharged their duty, and find that the balance of cash to be passed to debit of Treasurer's account, for the current year, amounts to eighty-one dollars and thirty-nine cents. The report was accepted, and the committee discharged.

Edward Parrish presented a living specimen of the Benne plant, from the garden of Frederick Brown, at Burlington, N. J., illustrative of a paper which he read, on the culture of Benne as an agricultural product for its seed and oil. (See page 224.)

He also exhibited and explained a new gas furnace, peculiarly adapted to evaporation, and, by an additional contrivance, to processes requiring high temperatures.

It was moved and carried, that when we adjourn it shall be till to-morrow morning at 9½ o'clock.

The President here requested permission to retire, owing to the illness of a member of his family.

Mr. Gordon, 1st Vice President, took the chair.

The Executive Committee having recommended the name of Wm. H. Page, of Brooklyn, N. Y., as a candidate for membership, a ballot was ordered, and his election was reported by the tellers.

William Procter, Jr., Chairman of the Committee on Subjects

for Investigation the ensuing year, reported a list of queries, with the names of gentlemen accepting them, which was read, and the report left open for further additions. (See page 58.)

On motion, the subject continued last year to Henry A. Tilden, on the comparative value of foreign and indigenous narcotic plants, was, in compliance with the request of that gentleman in a letter to the Association, continued to him another year.

Frederick Stearns offered the following:

Resolved, That this Association will not accept any report or scientific paper, written by a member or contributed by one not a member, which has been previously printed and distributed.

The resolution was adopted.

The Business Committee reported the possession of a paper received from John L. Kidwell, of Georgetown, D. C., being a "List of medicinal and useful Plants procured by the Agricultural division of the Patent Office."

On motion, the paper was read, accepted and referred to the Executive Committee. (See Appendix, page 241.)

John M. Maisch then read a paper on Narcotic Fluid Extracts, which, on motion, was accepted, and referred to the Executive Committee. The paper was accompanied by specimens of fluid extracts made by the process recommended. (See page 213.)

The same gentleman read a paper on Hydrobromic Acid, which was accepted, and referred as usual. (See page 220.)

On motion of Dr. Squibb, the Chair was requested to appoint the Committee on "Home Adulterations."

Edward Parrish moved to strike out the word "Home," as limiting the scope of the Committee. He thought there was enough of foreign adulterations among drugs and chemicals to require investigation, and he believed the Committee would prefer the greater latitude thus afforded to them.

The motion, as amended, passed, so that this Committee is now called "The Committee on Adulterations."

The President appointed the Committee, which, after readjustment, stood as follows:—Charles T. Carney, of Boston, Chairman; John D. Dix, of New York; Joseph Laidley, of Richmond; William Procter, Jr., of Philadelphia; Charles A. Junghanns, of Cincinnati, and G. W. Andrews, of Baltimore.

The Chairman of the Business Committee suggested the following subjects as proper for discussion by the Association: I. The Sale of Poisons. II. Weights and Measures, with regard to the adoption of the British change for our Pharmacopœia. III. Sunday Trade.

Edward Parrish brought up the subject of Prizes, which, after some discussion, was postponed for the time.

On motion of Dr. Squibb, the Association adjourned until 9½ o'clock A. M., on Friday morning.

Friday—Morning Session—September 14th.

The meeting was called to order by President H. T. Kiersted. The minutes of the previous session were read, corrected and approved.

The Executive Committee offered the names of the following gentlemen as candidates for membership:—

Alexander V. Blake, of New York city.

J. Weaver,

“

A ballot was ordered; John Meakim and Evan T. Ellis, acting as tellers, reported their election.

The Business Committee, called for the reading of the biographical paper on Hon. Henry Cavendish, which was proceeded with by the writer, Henry F. Fish.

On motion of Mr. Carney, the paper was accepted by the Association and referred to the Executive Committee. (See page 225.)

The chairman of the Committee appointed to examine the articles on exhibition, read the following Report, which was adopted:

The Committee appointed to report upon the Exhibition of Specimens, submit the following remarks:

Of course, owing to the limited time at their disposal, they can speak only in general terms, except in those cases where special information upon any specimens has been given them by the exhibitors:—

CHEMICALS.

We notice a collection of twenty-four bottles of very fine looking chemicals from Messrs. Chas. Pfizer & Co., of New York; prominent among them are the specimens of Strychnia and its salts, Pyro-Phosphate of Iron, Hypo-Phosphite of Lime, Ammonio-Citrate of Iron, Citrate of Iron and Quinia, Red-Precipitate and re-sublimed Iodine.

A collection of seven bottles of chemicals, made by Messrs. Garnier, Lamoureux & Co., of Paris, exhibited by F. A. Reichard, of New York, are worthy attention for their fine appearance and apparent excellence; among them are Citrate of Iron, Tartrate of Potassa and Iron, Iron by Hydrogen and Soluble Cream of Tartar.

Geo. W. Weyman, of Pittsburg, Pa., has on exhibition several specimens of "Crude Mineral Oils," from the great oil-bearing district of Western Pennsylvania, which are quite interesting,—presenting as they do such a variety of physical characteristics, though taken from localities almost identical.

Specimens of Chloride of Propylamin and Valerianate of Ammonia, in fine crystals, exhibited by Messrs. Benj. J. Crew & Co., of Philadelphia, are, in the opinion of your Committee, the best they have ever seen.

Eight specimens of chemicals are exhibited by Messrs. W. J. M. Gordon & Bro., Cincinnati; among them we notice specially Chromic Acid in crystals, Iodide of Lead, Hydrastin, Naphthalin and Sulphate of Sanguinaria as being very excellent.

Eleven specimens of chemicals exhibited by Edward Parrish, Philadelphia; among them some of the more rare compounds—such as Tannate of Bismuth, Neutral Benzoate of Ammonia, Benzoate of Soda, Terbenzoate of Iron, Nitro-Prusside of Sodium and Aloin are noticed as worthy the attention of members present.

Some very fine specimens of pure inodorous Glycerin, made by Henry C. Bower, Philadelphia, on exhibition by Charles Bullock, of Philadelphia, attract our attention. We find the sp. grav. to be 1.225, and testing it in the imperfect manner at our command, judge it to be a very superior article,—quite equal to any foreign we have seen—and we regard it with gratification, as being an advance in home manufactures.

A specimen of Sulphate of Ammonia, from Gas Liquor, is also exhibited by the same parties.

Henry F. Fish, of Waterbury, Conn., exhibits a fine specimen of "Pulverulent Camphor," prepared by the process peculiar to himself (see page 177;) also a specimen of "Sassy Bark," from the coast of Africa; also specimens of embossed pill-box covers,—the embossing being done by a hand-press.

PHARMACEUTICAL PREPARATIONS.

Edward Parrish, of Philadelphia, Pa., exhibits some forty specimens of various pharmaceutical preparations,—not in general use, but evidently prepared with careful attention; among them Pierlot's Elixir of Valerianate of Ammonia, Glycerole of Hypophosphites, Bitter Wine of Iron; and also Aloin, and Bi-Muriate of Morphia, imported by him from P. Squire, of London, England.

A case of quite a number of pharmaceutical preparations, exhibited by John Faber, Pharmaceutist, of New York, attracts our attention. Many

preparations not often made by the retailer, apparently of very reliable quality, show a commendable interest in this branch of our profession. The specimens of fluid extracts, made by formulæ of Prof. Procter, and the powdered vegetable extracts, as recommended by the Prussian Pharmacopœia, attracted our special attention.

We cannot too earnestly urge upon the retail Pharmacentists throughout the country the real practical and valuable addition to our stock of knowledge which follows the adoption of this plan of personally manufacturing pharmaceutical preparations.

Charles Shivers, of Philadelphia, has on exhibition some specimens of spread plasters in cases; among them we notice the Isinglass Plaster as being a very fine article. He also has specimens of Water-Proof Arnica and Court Plasters.

A case of neatly spread Strengthening, Warming and other Plasters is exhibited by Geo. J. Scattergood, of Philadelphia.

Specimens of Grape and Blackberry Wine are exhibited by F. A. Rockwell, of Ridgefield, Conn.

An assortment of forty specimens of Dragees and Granules, made by Garnier, Lamoureux & Co., of Paris, France, is exhibited by F. A. Reichard, of New York, and presents a handsome and finished appearance.

Alex. Cushman, of New York, exhibits specimens of "Wine of Quinium," and the compound Syrups of the Phosphates and Hypophosphites, and Syrupus Ferri Super-Phosphatis.

C. B. Robbins, of Worcester, Mass., exhibits specimens of Gutta Percha Adhesive Plaster, and "Good Samaritan" Plaster; both articles appear to be of excellent quality.

Messrs. Gale Brothers, of Chicago, exhibit a fine article of Native Wine, made from the wild grape, the flavor of which is very evident.

DRUGGISTS' SUNDRIES AND APPARATUS.

Quite an extensive assortment of druggists' sundries is exhibited by Messrs. Morgan Brothers, of London, England, through Messrs. Schieffelin Brothers & Co., of New York. We notice several novelties among the collection. The assortment of Liquids for Dyeing is somewhat new. Specimens of Oil Bottles, Pungents, Lint, and Turned Boxes, are also to be found in the collection.

H. H. Burrington, of Providence, R. I., exhibits a specimen of a new Uterine Elevator.

A large assortment of Hydrometers, Urinometers, and Specific Gravity Instruments, exhibited by the maker, Dr. W. H. Pile, of Philadelphia, merits the attention of the Association. They have been found to be every way worthy of confidence after long and careful trials.

Walter P. Denslon, of New York, and Edward Parrish, of Philadelphia, both exhibit specimens of Gas Stoves, which would be found useful in every pharmacist's laboratory.

Messrs. B. B. & J. Hagerty, of New York, present several specimens of Glass Ware, Glass Syringes, Breast Glasses, &c. We notice specially the specimen of Glass labelled Shop-bottles, with a label, indestructible, as far as the action of alcohol, acids and such liquids is concerned; also a glass-capped Oil-Bottle and Graduated Glass. They have on exhibition a new stand for Soda-Water Tumblers.

CHARLES T. CARNEY, <i>Ch'n.</i>	} <i>Committee.</i>
GEO. W. WEYMAN,	
J. CANAVAN,	
S. M. COLCORD,	
JOHN MEAKIM,	

The chairman of the Business Committee next offered the following preamble and resolution, based on a recommendation in President Colcord's Annual Report:—

WHEREAS, The subject of legal restraint for controlling the sale of poisons is at present much agitated in some States of the Union, and appears to be attracting universal attention: *And Whereas*, this Association has always regarded this important subject as one of the reformations most desirable between pharmacutists and the public: *And Whereas*, Several bills have been enacted and proposed for the purpose of effecting the desired object, neither of which entirely meets the approval of this body; therefore,

Resolved, That the judgment of this Association be now had upon the subject, and that thereon a committee of three be appointed to mature a plan by which the objects may appear to be best attainable,—that committee to report at the next meeting of the Association.

Mr. Guthrie spoke of the Preamble and Resolution as follows:

Mr. President and gentlemen of the Association: I should suppose that one object of offering a resolution with a preamble in that form, is very much to get at the voice and opinions of the Association upon the subject. I have my own views and opinions with regard to that matter, which, if it is proper and desirable to the Association, I should be very glad to express. If that resolution has been seconded I will speak to it.

There is no question that this is one of the objects directly within the range of this Association; there is no question that it is an important matter, and one which should be approached with great care and with a determination to do something besides empty talking. You can scarcely now pick up a paper or new book that there is not some fling at the profession of the apothecary and pharmacist, couched in language oftentimes offensive, oftentimes predicated upon bad information, more often in error and sometimes in malice. The profession owes it to itself, and this Association owes it to the country at large, that they should put their voice upon record in this matter in unmistakeable language. All

the laws that I have got hold of have, in my mind, begun at the wrong end, with regard to the sale of poisons and poisonous drugs. Last spring a year ago, at the National Quarantine and Sanitary Association, held in this city, a Committee was appointed to report upon the subject, of which Committee I had the honor to be Chairman. I made a report alone, the other members neglecting to aid me, either from negligence or inability. In that report, after giving, as far as I was able, a history of the laws upon this subject, I took this ground; I am not pertinacious in maintaining it, I took it as something in advance of anything that had been taken before. Allow me to say again, that all the laws upon this subject have begun at the wrong end. They have all made it obligatory upon whoever sold poisons, to do it upon the recommendation of a regular practitioner. Now, is the apothecary, whenever he receives a prescription, to drop it upon his counter, and to run to ascertain whether the person who sent the directions is a regular physician or not? Now, there is no such thing as recognizing a regular practitioner of medicine, not even by the profession itself. We recognize those gentlemen who have passed through a regular course of instruction, and thereby become entitled to the respect of their own associates and the confidence of the community at large. We may know those who are regular men, who are in practice, but we can't communicate to the apothecary this information, we cannot give them any precise information by which they are enabled to act understandingly in the sale of poisons! Thus any law that provides that the apothecary must know who is the regular physician and who is not, falls to the ground as a dead letter, never will be executed, and is of no avail. All the talk about the sale of poisons, and the attack upon the apothecary for having done this thing and that thing, when it was not prescribed by a regular medical man, amounts simply to this: Any man can be a doctor who chooses to write a bob-tailed R at the head of his directions and sign his name with an M. D. at the end. He is recognized as a medical man, and I would ask how you can help it? My friend, Dr. Bachelder, knows that there are men who write prescriptions every day of their lives, who have no right or title to do so! Hence any attempt to regulate the practice of the apothecary by the prescription of somebody behind him is positively futile and impossible. What have you to do? You have got to determine who are apothecaries; you have to demand some guarantee that they are competent.

We have labored as an Association ten years to elevate the profession to something like a standing which it is entitled to. We have done much and very much is to be done. We regulate by law all over the country in every small village, who shall and who shall not sell whisky, and no member of the community complains because his neighbor has a license and he none. There are men who are not licensed and who are not allowed to sell these articles. Now, if we could come at some criterion by which we should know that there may be some individuals who are licensed;

fixing the responsibility upon somebody's shoulders, (I don't care how you do it,) for the ability, the competency, and the honesty of the individuals who have the liberty of compounding those articles which occasion so much disease and death throughout the land ; a great point would be gained. Go throughout our country, North, South, West, and I don't know but what it may be in the East, and you will find in some of the country stores cream of tartar and strychnine on the same shelf, some are labeled and some are not. These articles are in almost every corner store. Most of our laws have reference to this matter, and prescribe certain things that shall not be sold, but, so far as I am aware, there is not a law existing in the Northern States which, in this respect, is not a dead letter. In the report that I made to the Quarantine and Sanitary Convention I took this ground, that no one, except he had a certain authority vested in him, should be allowed to dispense certain articles known as poisonous drugs. That such authority should be given by some College of Pharmacy, or that he should have the certificate of membership to the American Pharmaceutical Association, or a certificate from two respectable practitioners of medicine in the city or village in which he resided, who should certify to his professional attainments, and that this evidence of his ability should be displayed in a conspicuous place in his store. The only object of this was simply that the apothecary, when he comes to deal out these doses, shall feel that he has a responsibility and has to answer to somebody for the manner in which such a duty should be performed. We have to designate the man, so that he shall be known by the neighbors as one vested with a weighty responsibility, that he be not placed upon a par with the man who simply deals in patent medicines, dye stuffs, etc.

Mr. Coddington. Now, poisons are dangerous, are often used for suicidal purposes, but I don't suppose any restrictions upon the sale of poisons will much diminish any dangerous tendencies in that quarter. It simply becomes with them then a choice of means. For the purpose of preventing any attempts against human life for murderous purposes something may perhaps be done. With regard to the new law on poisons, passed last April, it strikes me that there are some very objectionable features in it. It makes it difficult to procure poisons by small quantities, yet allows them to be purchased by the pound. The housekeeper might put such a quantity away in some safe place, as she thought, and the cook possibly looking for some culinary salt would use it instead. I only make these remarks that this feature may be taken into account, in the drafting of any new law upon the subject.

Dr. Squibb. The object of any new law upon the subject is, I take it, to avoid the use of poisons for criminal purposes. The criminal use may be divided into classes : I. For suicide. II. Murder. It seems to me that the law aims to prevent the latter crime. If a person wishes to commit suicide, and he finds he cannot obtain a poison, it becomes, as

Mr. Coddington has said, merely a choice of means, he can jump off the dock or blow his brains out, and no one can pass a law to prevent the act. The difficulties which lie in the way are, in defining what are poisons; what are those which are likely to be used for murderous purposes. It appears to me that the list enumerated in the new bill is altogether too large, and very many of them have never been known to have been used for criminal purposes. Again, restrictions are placed upon certain articles which are used extensively in the arts, which tends a great deal to clog the wheels of commerce. It seemed to Dr. S., that on framing a law the controlling should be exerted in the protection of the proper persons in the exercise of their rights and hold them responsible for their wrongs. Any man seemingly has a right to call himself a doctor, provided persons will call on him; the onus lies upon those who employ him. Now, the law-givers say that the sale of poisons must be restricted, yet they, on the other hand, allow a drug shop to exist at every corner of the street. This law may place some restriction upon the sale of poisons, but a criminal who wishes to purchase a poisonous article can easily offer a fictitious name and obtain fictitious vouchers. There is another point. There is a great deal of stress laid upon physicians' prescriptions. Now, they rarely, except by inadvertency, prescribe poisons in murderous doses, and if such should be the case, the educated pharmacist could correct the mistake at once.

Dr. Squibb then made a motion to the effect, that all such members of the Academy of Medicine who were present, be invited to express their views upon the matter.

Dr. Samuel Rolton Percy. Mr. President and gentlemen of the Association: I worked as hard as I could to get a law passed upon this subject. The law now in force is not the one originally offered. The one referred to met with such decided opposition, that unless we would yield almost everything we had to be satisfied, and besides, if it had not been for the strenuous exertions of Senator Rotch it would not have passed at all. It was proposed in the original bill, that every person who sold poisons should be licensed so to do, the fee to be fixed upon at a nominal price. The object of that would be that every one who dealt in such articles should be known to the officers of the law. This clause met with very decided opposition, numerous amendments were offered and accepted, and when the whole thing passed the House only the two first sections of the original bill were left. As it is, however, I think it is a great improvement on the old law, which merely provided that any person could sell poison if a label of "poison" was placed upon the article. This law, it is well known, was evaded in every way, and was thus rendered utterly useless. The new law provides that any person may sell or purchase poison, provided the name of the purchaser is recorded, together with some witness to the sale, unless the prescription of a physician is given. The object of the law is not for the purpose of controlling

suicide, but to prevent the sale of such articles for the purposes of murder and abortion. The sale of them for murder could be very much controlled by knowing to whom the poisons were sold; a person who was base enough to commit such an act, would be base enough to offer a fictitious name; still, he knows it is very easy to prove, by the two witnesses to the sale, that he did purchase such an article. When suspicion falls upon any such a person it is very easy to refer to the record and give the precise date of purchase. Therefore, I can conceive that we have done a great good. I do know of one instance where such a regulation being insisted on did prevent a murder. With regard to the sale of many other articles,—Cantharides has been used both here and in Europe; has been given to females for the purpose of exciting their passions, in several instances did very great injury, which eventually resulted in death. Ergot is thus daily used. As it would be perfectly impossible for any person to draft a law that would reach every case, we must try as much as possible to prevent existing evils.

Mr. Parrish. I am very glad of the remarks we have just heard. My own impression has been favorable to such a law. We have a law, strange as it may seem, in the State of Pennsylvania, somewhat similar, which was passed last winter. The fault I see in this law is the fact adverted to by Dr. Squibb, of the enumeration of too many articles. There are many purposes for which poisons are obtained besides intentional murder, the sale of which ought to be restricted. We all know that some of these are very frequently used for the purpose of producing abortion. We all know, too, that a conscientious apothecary will not sell any article for such a purpose when there is the slightest suspicion entertained of its abuse. In this discussion I have been carried back to a meeting of the Pharmaceutical Society of Great Britain that I attended in London. It happened to be upon this very subject; Parliament was discussing a law restricting the sale of poisons. The druggists were all up in arms about it; the principal speaker was the Hon. Jacob Bell, who was joined by several veteran pharmacutists. They bore their testimony to this sentiment, that the safety of the public consisted in having *conscientious men* to sell medicines, and that was *the only safety*, as all laws and provisions were useless. Some of these had stood behind the counter for forty years, and never had known an instance of medicine bought from them for criminal purposes; because they were always on the lookout! Then, again, here is where the law comes in; a great point is to have a witness to the purchase. In the terrible case that occurred in New Jersey, in which a man poisoned his wife, the whole thing rested upon the apothecary, living in Easton, being a witness to the sale. If you could only execute a law of this kind it would be all well enough, notwithstanding the details may be wrong. You can't control physicians' prescriptions, as has been remarked. If I get a prescription that has the appearance of being written by a physician, I can't get behind it; I don't think

that I have a right to question in the matter; I must be satisfied if the official names are given correctly, which, by the bye, is not always the case. It may be a poisonous dose—supposing it is for criminal purposes. A physician came into my store for a prescription; I knew him, and gave, according to his prescription, a drachm of ergot. Two or three days after he came in with a little vial in which was a foetus, probably over thirty days advanced. Now, there was an instance of cause and effect. This doctor had committed the abortion; how can I go behind that and undertake to refuse to sell him any such article? The medical profession are as much at fault as we are, and more. I believe that apothecaries save thousands of lives by their vigilance in this matter. There is just where the Pharmaceutical Association comes in. If we raise a Committee on this subject, they ought to write the right kind of paper, enforcing these views, and if any legislation is to be done, we ought to offer some good advice to such bodies. I received a letter from a member of the Legislature, saying that he was going to propose a law for the direction of the apothecary, with reference to the regulation of the sale of poisons, asking me to give him suggestions and submit the matter to the College of Pharmacy. Notwithstanding I thought that the proposition on his part was only for buncombe, I took it to the College, who did not take any action in the case. If the College of Pharmacy would frame a law and get the legislators to pass it, then it would be a straightforward thing; or, if this Association would frame a law and put it into the hands of some enterprising legislator, who also may have a leaning towards buncombe, the whole matter might be set at rest.

Dr. Guthrie. I think we drift away from the exact point of the question. My ideas agree with those that Dr. Squibb has advanced entirely, that there is a marked difference between the use of those articles for criminal and suicidal purposes. The former crime might be prevented, but the latter cannot be. There is a secondary point which has not yet been noticed. If the idea I suggested had been acted upon, you start with the idea that before you make the apothecary accountable and responsible, you fix a point from which his responsibility shall start; you thus offer an incentive to every young man who looks to the cultivation of the pharmaceutical profession to educate himself for it. If you make that distinction between the pharmacutists and simple sellers of drugs, you give an impetus to our Colleges of Pharmacy beyond all precedent; you compel the students to resort more to their books, that by education they may place themselves in the foremost rank of their profession. Now, I don't believe this is impossible. Almost every journal that you see has some article with reference to poisoning by the apothecary; but the result is the same, they keep stirring up the opinion of the public that they may call upon the Legislature to protect them. You can't keep them from doing it! Now, if we can direct this law-making power to enact such a law as shall offer a protection to the druggists, as I said

before, you offer an incentive for the young men in our stores to educate themselves to fill our places. I think the object would be attained in that way, to make a distinction between the pharmacist and the mere seller of drugs. It would not be burdensome to the profession or community at large if you reduced the list of those who sell poisons and limit the privilege to a certain few. The regular physician has a right to prescribe anything he chooses, and if he finds that it is a troublesome thing to obtain the article, he can go to a neighboring apothecary shop and have his prescription put up.

At the suggestion of Dr. Squibb any members of the Academy of Medicine, or of any other medical Society who might be present, were solicited to give their opinions upon the subject under discussion.

Dr. A. K. Gardner said : It strikes me, Sir, that the most injurious thing for any community is to have a law passed which cannot be carried out, and it strikes me that the law which has been enacted by the State of New York comes under that category. In order to prevent the sale of any poisons it seems to me requisite in the first place that we shall have conscientious men in the business ; if such is not the case they will break the law if they should find it to their pecuniary advantage. I know, Sir, that there is great difficulty in framing any law, and the one which we have now before us under discussion is open particularly to objections. Any poisons can be sold by physicians. Now, unless we have a list of names, that we may know who the physicians of a place may be, I don't see how we can prevent the spread of crime, more especially when any one can be styled a doctor who is able to collect his fees ? A barber may pull down his pole and put up a shingle ; we have "homeopaths," "eclectics," "women doctors," veterinary doctors, and dog doctors ; all these are acknowledged as professional men, and are as much entitled by law to their fees as any member of the New York Academy of Medicine. That being the case, any man can go into a shop and get whatever he wants. Now, until in the first place we have a law deciding who doctors are, and another law for the purpose of selecting conscientious and honorable minded men for druggists, not until then will there be any utility in a law. We have druggists here in New York, whose only attainments are to be seen through the colored globes of their windows, and whose only stock in trade is a few roots and herbs, and yet they are styled, nevertheless, *druggists*. If they have consciences, under these circumstances, to call themselves druggists, they have none too much to sell anything they can make a sixpence by. To take the law even in Europe : in France, the quacks are educated men who, tempted by the love for gain, have swerved from their high calling. Honorable physicians in Paris, are men of education, and necessarily they must possess their degrees ; no man can practice any kind of medicine there without them. Then, too, the apothecary has to go through a similar training, and has to

have similar diplomas before he can dispense medicines. I have been in an apothecary's shop in Paris and ordered an ounce of laudanum, and yet that apothecary did not know me from Adam. I could not with my broken French make myself very intelligible, and so I wrote *Tinctura Opii*. He thought that I might be a physician from the fact that I wrote the direction in Latin. Any person could easily do as much. The clergyman who was not long ago hung in New Jersey, for poisoning his wife, could easily obtain knowledge enough of a poison to give its official name. So even there in Europe, where you have all the fundamental points of education enforced, where a proper education of the physician is insisted upon, and where the apothecary has to comply with all the requisite guarantees for thorough education and good moral character, even then there is no great difficulty in obtaining any poison you may wish.

Looking at the law upon this subject, now in force in this State. Any stranger asking for an ounce of strychnine, his name is taken, witnesses are by, and the article is sold. Here again, we find another point which is worthy of attention. The apothecary calling his boy from the back part of the store, says, "John come here and sign your name," In almost every instance they have upon the record, the name of the person who dispensed the poison, and another person in the same employ as witness; therefore the law is evaded, you get two names for what is virtually one individual. If a man writes the name of his firm, Shedder & Neergard, it must not be considered as two persons; they have in that combination but one interest, and therefore should be counted as one. No conscientious apothecary will allow this to be done. I know that there are a great many druggists who will be ready to sell anything, if, perhaps, they can make a sufficient amount to warrant them in running any risk of violating the law; and on the other hand a purchaser, under such circumstances is ready to pay the demand. A physician who buys ergot to give to a woman for improper purposes will get it at any price.

It seems to me, therefore, that the only hold you have upon the community for the prevention of crime, is that which you get upon them for their own integrity; until you get behind the whole and fix who are the real apothecaries, and who the proper physicians are, you are not able to do anything. The only way in which I can see this can be done, lies very much in the hands of the physicians; I think physicians should be particular to whom they send their prescriptions; I will venture to say that not more than two-thirds of all who call themselves such, are proper apothecaries. If physicians will send their prescriptions only to those whom they know to be conscientious men, they will not only get articles reliable for their purity, but the effect will be to starve out these poor druggists, and oblige them to do a business of selling spirit gas, dye stuffs and segars."

Mr. Gellatly. We can't prevent the Legislatnre from enacting any law, and we have consequently to take the matter as it stands. It is,

however, our duty to offer suggestions and solicit the co-operation of such law-giving bodies.

Mr. Gordon. The law passed in Ohio regulating the sale of poisons takes notice only of arsenic. That law has been found of some benefit, but I think it could be very much improved, by adding a list of such articles as named by Dr. Squibb, and perhaps with the addition of those used for abortion.

Dr. Batchelder knew that the present law was very defective as far as the prevention of the use of poisons were concerned, and thought that a new one should be framed to meet all the exigencies of the case.

Mr. Meakim. "It is a subject that I have felt considerable interest in for several years, and I have definitely made up my mind that the difficulty lies at our own doors. There is too much apathy on the part of those pharmacutists who I am acquainted with to incur the time and trouble, to give the requested amount of influence and attention to the carrying out of this law. They lay too much stress upon the exercise of their own judgment. As a body of pharmacutists we are like all other bodies. There is no legislative act that can control the consciences of men; men may be licensed to pursue the business of the pharmacist, and yet be without that integrity and moral rectitude that should guide them in the sale of poisons. Legislatures bodies I know can't control this, but I am satisfied if we start in the matter ourselves we have the elements within us of carrying out any law we might propose. The public naturally look to us for information upon this point. It appears to be the legitimate channel for action, and I have no doubt if we move in this matter, and devise reasonable and just laws, not being too strict, we shall have no difficulty in accomplishing the object.

Mr. Coddington. A law of this nature would be gladly accepted by the apothecaries, the difficulty does not lie with them, but with the people. If the purchasers of these articles would come up to us with all the necessary preliminaries, there would be no trouble about it. We can't expect that they will come up with two witnesses; I suppose that witnesses should be known to us. I merely wish to correct Mr. Meakim's impression as just expressed.

Mr. Carney. A law which could be enforced must be one in my judgment which restricts the sale of a very few articles, those articles which are generally known as poisons by the community; any such general law that could be passed would I think be welcomed by every pharmacist, because it relieves him from all responsibility as far as those special articles are concerned, giving him an opportunity of throwing himself upon the legality of the question when he is urged to sell them in any doubtful case. For myself I have abolished the sale of poisons. I have for years declined selling them at all. I know a person, a friend of mine in the vicinity of Boston, who adopts the same plan; he will not sell arsenic or corrosive sublimate to his most intimate friend.

Mr. Stearns. I had the honor in 1858 to be a member of the committee

on the sale of poisons, and I must say that my opinions as given in that report have not been changed since. * * * You have to elevate the standard of education among the medical profession and druggists before you can get at any practical result whatever. Take an intelligent man in the business, and his business policy leads him to be just as careful as he can be to prevent the improper use of anything that goes out of his store. I have no objection to having a committee draft a law to be presented at the next session in regard to specifying the poisons, but I think instead of specifying them they should be generalized.

Mr. Meakim. I think if Mr. Stearns views were carried out it would have a tendency to ignore us altogether, and drive us either into the seegar or liquor business. The articles generalized would embrace such a large number that we should be continually embarrassed. I should in preference to that proposition accept the one referred to by Mr. Carney, and decline to sell the articles at all.

Mr. Gordon. I very fully disagree with Mr. Stearns. A great many articles which are known to be poisons would be sold, and the law upon the subject altogether disregarded. * * * In our State arsenic is specified, and must be colored and registered before sale, and I am satisfied that by these means the sale of that article is very much restricted.

Mr. Procter. There are two views to be taken into account in the proper consideration of this subject, one for the purpose of protecting the apothecary against any reflections cast upon him, and the other for the protection of the public. I presume that legislators in passing laws have more intention of protecting the public than in relieving the apothecaries. In passing laws they consequently make them so comprehensive as to bear exceedingly hard upon pharmacutists. In regard to the Pennsylvania law, it may be well to state that only a few articles are specified—arsenic, corrosive sublimate, prussic acid, morphia and strychnia. It requires that the apothecary should simply register the amount sold, the date of the sale, and the name of the person to whom it is sold and of the person who makes the sale. The law also requires that the person getting the poison shall be known to the one who sells it; that it must be a person who is of full age, and in good standing. A servant that is known to the parties selling, as living in a house of good standing, may be considered as a person in good standing. It appears to me that so far as a law of that kind will operate favorably, it is well. It will enable the officers of law to find out who has sold poisons. That is all it does. It does not restrict us from selling any amount of poison as far as that goes; but it tends to discover the criminal, and in this way has a good effect. It seems to me if this committee is appointed, that they should keep both of these objects in view, viz: the safety of the public and the relief of the apothecary. Members of this Association, taking them at the general standard which we consider necessary for admission, are a class of persons to whom this law is of very little use; but outside in the country stores, persons who can make money by the selling of poisons, and who have no

conscientiousness about the matter, and do not reflect, give it out without any care. If they come under this law of the registry of poisons, they of course will be compelled to signify to the officers of the law to whom they have sold poisons ; and in that way it will have a good effect.

Dr. Percy. It seems to me that Mr. Procter has covered the whole ground. All that is necessary is to find out who has bought the poison, and who has sold to these parties. There is no law which can be enacted which will prevent the sale, and therefore the only requirement is that it may be known who buys and sells. Mr. Procter also covers the whole ground in another point. There is no necessity for any law upon the subject, if apothecaries and physicians were all honorable, high minded, and conscientious men. But there are traders among us, and these should be restricted ; the law applies to these and these alone ; and it was framed for such individuals, and not for professional men.

The question on the preamble and resolution of Dr. Squibb being called for, a vote was taken, and they were adopted.

Edward Parrish offered the following :

Resolved, That the Executive Committee be directed to forward copies of the Proceedings, including those of previous years as far as practicable, to the various pharmaceutical and chemical societies and colleges in this country and Europe, with the request for exchanges.

It was moved to amend the resolution by including the editors of the leading newspapers, which on being put to vote was lost.

The resolution was then voted for, and was adopted.

William J. M. Gordon, of Cincinnati, offered the following :

Resolved, That this Association tender their heartfelt thanks to the New York College of Pharmacy, and to the druggists and pharmacutists of New York, who have contributed to the comfort and entertainment of its members during the present sessions.

Which was unanimously adopted.

The Chairman of the Business Committee having informed the Association that the remaining business claiming its attention was the prize question ; the report of the committee on subjects for investigation the ensuing year ; the expression of an opinion on weights and measures ; and in reference to Sunday traffic ; considerable discussion ensued on the propriety of now entering upon the subject of weights and measures ; which, on motion, was taken up.

The following preamble and resolutions offered by the Business Committee were read, viz ;

WHEREAS, It is the judgment of this Association that a change in the

official tables of weights and measures is desirable and expedient ; And *whereas*, it is understood that the final Committee of Revision and Publication of the U. S. Pharmacopoeia have as yet come to no action upon this subject ; therefore,

1. *Resolved*, That it is expedient and proper for this Association, at this time, to offer its judgment upon this important subject.

2. *Resolved*, That the change of weights recently adopted in the Committee of the Council for consolidation and revision of the British Pharmacopoeia, by which change the table of avoirdupois weight is adopted, with a new division of the avoirdupois ounce into 480 parts, to be called grains, meets the approval of this Association, and is recommended for adoption in the National Pharmacopoeia.

The vote being taken on the preamble it was adopted.

The first resolution was also adopted.

The second resolution was read again, and its tendencies explained by Dr. Squibb, and views were expressed by various members on the subject. After a great deal of discussion, in which the majority were opposed to the resolution, the motion to adjourn till 3½ o'clock prevailed.

Friday—Afternoon Session.—Sept. 14th.

The meeting was called to order by the President.

The Chairman of the Committee on Questions for Investigation, &c., read the conclusion of the report, which was now on motion of S. M. Colcord, adopted in full, and is as follows :

The Committee appointed to prepare a list of subjects for investigation next year, report the following, viz:—

1. Is morphia volatilizable by heat without losing its narcotic properties ? If not, how are the narcotic effects of opium smoking accounted for ?

Accepted by William Procter, Jr., of Philadelphia.

2. Cerate made with Japanese wax is said to acquire a dark color. Is this change a necessary consequence of the use of that wax ? and what is the real value of that substance in Pharmacy ?

Accepted by Thomas A. Lancaster, of Philadelphia.

3. To what extent can oil of benne (ol. sesami) be substituted for olive oil in Pharmacy ?

Accepted by James T. Shinn, of Philadelphia.

4. What are the probabilities in favor of tartaric acid and tartar becoming commercial products of the wine culture of the Ohio valley ?

Accepted by W. J. M. Gordon, of Cincinnati.

5. Can the root of *Aconitum napellus* be economically produced in the United States, and does it possess the activity of the imported drug derived from that plant ?

Referred to Henry A. Tilden, of New Lebanon, N. Y.

6. Arsenical pigments;—are they as extensively employed, and with such poisonous effects as has been asserted?

Accepted by Benjamin J. Crew, of Philadelphia.

7. Is there a permanent solvent for cantharidin that will retain it in a liquid state in pharmaceutical preparations?

Accepted by Wm. R. Warner, of Philadelphia.

8. Garancin. What is the best process for obtaining it, and the best method of testing its purity as found in commerce?

Accepted by Benjamin J. Crew, of Philadelphia.

9. Is there a principle in *Chenopodium anthelminticum* analogous to santonin?

Accepted by James Balmer, of Baltimore.

10. Is there a crystalline active principle in capsicum? or does it owe its activity to a soft resin?

Accepted by Frederick L. John, of Philadelphia.

11. What are the advantages, if any, of *Conium* seeds for making the *Tinctura Conii*, as regards uniformity of medicinal strength, and increased power, compared with the leaves?

Accepted by Henry F. Fish, of Waterbury, Conn.

12. Has the resinoid principle of *colocynth*, extracted by alcohol, a reliable and constant therapeutic power? and may it advantageously be employed in medicine?

Accepted by John Faber, New York City.

13. The oil wells of Western Pennsylvania—the quantity and quality of oil they afford at present, their prospective value, and the geological character of the formation where the oil is deposited?

Accepted by George W. Weyman, of Pittsburg.

14. Does wood creasote exist in the market? To what extent compared with coal tar creasote or carbolic acid? And what are the objections, if any, to the substitution of the former by the latter substance in medicine?

Accepted by Charles Bullock, of Philadelphia.

15. Cotton seed oil, the expressed oil obtained from the seeds of *Gossypium herbaceum*, being easily obtained, and at a low rate:—Are there any therapeutic objections to its being substituted for olive oil, in pharmaceutical preparations?

Accepted by William J. Watson, of New York City.

16. Is propylamin the principle in *Ergot* that influences uterine contraction; and if so has the propylamin of commerce, derived from hering pickle, a like power?

Accepted by E. Donnelly, M. D., of Philadelphia.

17. Is there a test for the therapeutic value of extract of *Cannabis Indica*, based on the chemical behaviour of its resin, that may be relied upon to distinguish the active from the inert drug?

Accepted by William Procter, Jr., of Philada.

18. It has been alleged that commercial honey is sometimes largely adulterated with artificial grape-sugar syrup, and ordinary syrup. Is

this true—where, and to what extent, is it carried on, and how may the adulteration be detected? *Accepted by Frederick L. John, of Philad.*

19. What is the most eligible manner of dispensing Phosphorus, for internal use? *Accepted by John Faber, of New York City.*

20. Is the sedative action of *Veratrum viride* due to the veratria known to exist in it, or is there another principle contained in the root to which that power is due? *Accepted by George J. Scattergood, of Philad.*

21. *Copaiba*. What are the botanical sources of this drug as at present furnished to commerce? and what is its present commercial history? *Referred to Prof. Joseph Carson, of Philadelphia.*

22. What is the actual condition of the codliver oil production and trade, in the United States? *Accepted by E. M. Blatchford, Rockport, Mass.*

23. Is the present wholesale production of sugar-coated pills advantageous to the interests of medicine? If not, what are the objections to it? and what are the best processes for coating pills with sugar, gelatin, and other substances, for extemporaneous use, by the dispenser of prescriptions? *Accepted by Frederick Stearns, of Detroit, Mich.*

24. Does the root of *Convolvulus panduratus* contain a glucosidic resin analogous to jalapin, and has it cathartic properties? *Accepted by J. L. Lemberger, of Lebanon, Pa.*

24. What is the value of *Chelidonium majus* as a source for sanguinaria, compared with *Sanguinaria canadensis*? *Accepted by P. Wendover Bedford, of New York City.*

26. What is the tannin value of the indigenous astringents of the United States, for medicinal and other purposes? *Accepted by Wm. R. Warner, of Philadelphia.*

27. Can Phospho-molybdic acid, as a reagent for alkaloids, be made available as a test for the strength of the narcotic extracts? *Accepted by Ferdinand F. Mayer, of New York City.*

28. What are the statistics of the trade in castor oil, as regards locality and amount of production of the beans, and the preparation of the oil? *Accepted by Ferdinand F. Mayer, of New York City.*

29. To what proximate principle does the marc of castor oil beans owe its activity as a purgative? *Accepted by William R. Warner.*

30. What is the true botanical source of "Southern Prickley Ash bark"? *Referred to Dr. Robert P. Thomas, of Philadelphia.*

31. The subject of new remedies, with reference to their effect upon the progress of pharmacy, and their educational influences upon pharmacutists. *Accepted by Edward Parrish, of Philadelphia.*

32. Anilin dyes—the history of the discovery and production of these coloring agents, and their probable influence on the decorative arts. *Accepted by George W. Weyman, of Pittsburg, Pa.*

33. An essay on tartaric acid, and the medicinal tartrates, in their chemical and pharmaceutical relations.

Accepted by John M. Maisch, of Philadelphia.

34. Is the tomato available as a source of citric acid for the supply of commerce, and has the seed of this fruit any medicinal power?

Accepted by Thomas A. Lancaster, of Philadelphia.

35. Are the "Spirits" of the Pharmacopœia better when made by distillation, than the preparations made by dissolving the respective volatile oils in alcohol?

Accepted by Thomas Wiegand, of Philadelphia.

36. What course should be adopted by pharmacutists in view of the present state of the liquor market, particularly as regards factitious brandies and wines?

Accepted by Henry F. Fish, of Waterbury, Conn.

37. An essay on the commerce in Quackery, in the United States, and its influence on the practice and progress of pharmacy.

Accepted by Thomas S. Wiegand, of Philadelphia.

38. The leaves of the castor oil plant (*Ricinus communis*,) and their reported property of promoting the secretion of milk.

Accepted by Alexander Cushman, of New York City.

39. What is the botanical source and commercial history of the 'anacahuito wood' of Mexico, said to be used in Germany in diseases of the lungs?

Referred to Charles Caspari, of Baltimore, Md.

40. What are the sources of the senega and spigelia of present commerce?

Continued to L. H. Dohme, of Baltimore, Md.

41. Can Elaterium be produced in the United States, and if so, is the indigenous product equal in power to the English drug? (To be finally reported on at the meeting of 1862.)

Referred to Professor Robert P. Thomas, of Philadelphia, Pa.

42. What is the smallest outfit of apparatus for a retail pharmacist with reference to the preparation of those chemical and pharmaceutical products which are economically made on a small scale?

Accepted by Edward Parrish, of Philadelphia.

44. What are the best arrangements and precautions to be observed in the preparation of soap for pharmaceutical uses.

Accepted by Charles Shivers, of Philadelphia.

45. What is the active principle of Arnica flowers; and what the best process for isolating it?

Continued to Dr. Henry T. Cummings, Portland, Maine.

46. The American species of the genus *Cantharis* as regards their usefulness in medicine as vesicants, their existing quantity in view of the supply of commerce, and other information regarding them?

Continued by request to T. Chapman Hill, of Antioch College, Ohio.

47. What is the best form and material for a still for the pharmacist's use, of from two to four gallons capacity, appropriate for heating by gas or stove heat, which shall combine economy with efficiency and fitness?

Continued to Dr. E. R. Squibb, of Brooklyn, New York.

48. An inquiry relative to the comparative value of the several arrow roots of commerce, which are derived from the *Maranta arundinacea*.

Continued to Evan T. Ellis, of Philadelphia.

49. European Pharmacy,—what are the chief differences and points of resemblance between it, and our own?

Continued to Robert Battey, M. D., of Rome, Georgia.

50. What are the principal sources of oil of sassafras for the supply of commerce, and what is its mode of manufacture and the quantity produced annually?

Continued to Alphæus P. Sharp, Baltimore, Md.

51. An investigation of the relative therapeutic value of foreign and indigenous medicinal plants.

Question of 1858. Continued to Henry A. Tilden, of New Lebanon, N. Y.

The Committee desire to receive authority to add to this list such of the unanswered questions of 1860, and others, as they may deem most likely to receive attention from the gentlemen to whom they may be intrusted.

WILLIAM PROCTER, JR., *Chairman*,
THOMAS S. WIEGAND,
EDWARD R. SQUIBB,
CHARLES A. TUFTS,
FREDERICK L. JOHN,

New York, Sept. 14, 1860.

Committee.

The Business Committee then suggested that the question of offering prizes be called up, which was agreed to.

After some informal discussion, on motion of Dr. Squibb, the whole matter was laid upon the table, to come up as unfinished business at the next session.

Query No. 30. On "Patents in their relation to Pharmacy and Medicine," by Edward Parrish, was now read, (it having been mislaid when called for in the proper order,) and was referred to the Executive Committee. (See page 173.)

The President announced the following gentlemen as the committee of three called for by the resolution in relation to the sale of Poisons:

Samuel M. Colcord, of Boston,
William Procter, Jr., of Philadelphia,
William J. M. Gordon, of Cincinnati.

The subject of weights and measures being now, on motion, resumed, the second resolution was read again, the discussion continued, and on a vote being taken it was not adopted, the general expression being against it.

Dr. Squibb offered the following as a substitute for that resolution, viz :

Resolved, That in the judgment of this Association it is expedient and practicable in the official formulas of the Pharmacopœia to abolish the use of measures of capacity, and to substitute for absolute weights and measures the term *parts*, meaning *parts by weight* ; and that this Association recommends such a change as the most simple, practicable, and effective one that can be at present made.

After considerable discussion this resolution was adopted.

The Business Committee brought forward the following :—

“Whereas this Association recognizes the justice and propriety of the recent movements in some localities, in regard to restricting the Sunday business of pharmacutists to certain definite hours, for very obvious good reasons, therefore

Resolved, That this Association heartily recommends the adoption of definite hours for the transaction of the necessary Sunday business ; such hours to be determined by the co-operation of the public, the Medical and the Pharmaceutical interests of the various localities, where these interests may combine to adopt the recommendation.”

Which was adopted.

The Business Committee reporting that there was no more business to be brought forward, it was on motion resolved that that committee be continued to bring deferred business before the Association next year.

John M. Maisch offered the following, which was adopted :

Resolved, That the thanks of the Association are due to the President, the first Vice-President, and the Secretary, for the efficient performance of their duty.

The minutes were then read and approved, when the Association adjourned to meet in St. Louis on the fourth Wednesday of August, 1861, at three o'clock, P. M.

JAMES T. SHINN, Secretary.

REPORTS OF COMMITTEES.

REPORT OF THE COMMITTEE ON THE PROGRESS OF PHARMACY.

In attempting to pass in review the incidents of the past year, which bear more or less directly on the progress of our profession, and the varied and important interests intrusted to it, your Committee desire to acknowledge that the blessing of prosperity has everywhere crowned the exertions of the honest and enterprising, whether in the cultivation of science in its varied and expansive ramifications, or in the more common-place pursuits of trade and business. Throughout our beloved country there has been a general prevalence of health, and a gradual recovery from the commercial depression of the last few years, and we believe the members of our Association have shared in a good degree these blessings. The results of the last annual meeting of our Association, held in Boston, have, it is believed, added to its reputation and influence; and the published volume of Proceedings has been perhaps more widely circulated than any of its predecessors.

Our several auxiliary associations will, we hope, without exception, be represented in the present gathering; they have only partially reported on their condition, to your Committee, and a few words will suffice to record what we know of their doings.

The Philadelphia College of Pharmacy continues to instruct large classes in its school; 125 matriculants entered for its thirty-ninth session, of whom 29 took the degree of Graduate in Pharmacy, in March last. In addition to the monthly *Conversazioni* during the winter, at which, numerous interesting discussions have taken place, the College has, through a "Committee on Herbarium," which has been industriously at work throughout the summer, added largely to its collection of indigenous plants,

and proceeded somewhat in the onerous task of re-arranging and cataloguing the extensive herbarium previously on hand.

These movements were chiefly instigated by the action of this Association, referring the letter of the Swiss Apothecaries' Association, proposing an interchange of specimens, to the Philadelphia College. Material is already collected, in part, for an interchange, such as was proposed by the Swiss Association, but it is in contemplation to add still further to the collection before commencing the exchange.

The labors of the large Committee of the Philadelphia College of Pharmacy, on the preliminary revision of the Pharmacopœia, were brought to a close in due season, and a complete manuscript copy was submitted to the Pharmacopœial Convention.

The New York College of Pharmacy has continued its courses of instruction as heretofore; the class of the past season reached 22 students, of whom five graduated on the 15th of March. A Committee of this Institution, in combination with one from the New York Academy of Medicine, matured and published an able report on the revision of the Pharmacopœia, which was published in pamphlet form and submitted to the Pharmacopœial Convention. No other movements have come to our knowledge, showing a zeal in this Institution commensurate with its central location and ability to promote the cause of pharmaceutical progress. May we not look for a revival of the energies of New York Pharmacy as a consequence of the present annual meeting of the Association?

The Maryland College of Pharmacy continues to prosper; 28 students attended the lectures of the past season, and six received the Diploma at the Annual Commencement, in March. The much regretted change in the Faculty will not, it is believed, affect materially the prosperity of the school.

The Massachusetts College of Pharmacy has not yet organized a successful course of instruction, though the thorough organization and the *esprit de corps* of that body, seem to warrant the belief that a well digested move in this direction would be crowned with success. Pharmacy seems an exception among the

professions in New England, so generally distinguished for superior educational advantages.

The Cincinnati College of Pharmacy seems to have recovered from the lethargy that so long encompassed it, and is now in a comparatively prosperous condition. A considerable accession to the membership is reported, and a larger attendance at its meetings. No definite arrangements have been made for a course of instruction, but a general desire exists that this may be brought about during the coming winter.

The Richmond College of Pharmacy has not, we believe, held any meetings, or shown any signs of vitality, during the past year.

The Pharmaceutical Association of Washington, D. C., has not been heard from during the year.

The Saint Louis Pharmaceutical Association has continued its prosperous career, since our last report. A thorough pharmaceutical education is more and more appreciated among its members and the druggists of that locality generally. An annual address by the President, and a report of the progress of Pharmacy, constitute features of interest at its annual meeting.

The San Francisco Pharmaceutical Association, from its remote position, has perhaps, been too much overlooked by your Committee. We are not aware of any progress being made in the work of organization and education, to which it seems to have aimed. Since recording the above we are informed by Mr. Little, formerly of that city, that the Association has been broken up by mutual consent, and the funds divided among the members.

The Chicago College of Pharmacy succeeded in inaugurating and carrying forward a course of scientific lectures the past winter. Dr. James V. Z. Blaney, Professor of Chemistry; Dr. F. Scammon, Professor of Pharmacy, and Dr. John H. Rauch, Professor of Materia Medica. The class reached about 20 students, and through the liberality of the professors and members of the College, the means of illustration were provided without involving the Institution in debt.

Among the foreign organizations we notice a degree of activity seldom surpassed. *The Pharmaceutical Society of Great Britain* has leased the property adjoining their former premises in Bloomsbury Square, and by an extended series of alterations and repairs, throwing the two buildings into one, have greatly enlarged their accommodations. Extensive lecture and examination rooms, a much enlarged museum, two ample laboratories, and a residence for the Secretary, have replaced the former somewhat limited establishment. The funds for these accessions have been chiefly derived from the legacy of their late respected President, Hon. Jacob Bell. With a view to perpetuating his memory a scholarship in the school has been created by subscriptions, generally of small amounts, which in the aggregate have already reached the sum of £1864.

The Provincial branches of *Edinburgh* and *Liverpool* appear to keep up an undiminished activity, and a new organization, called the *Newcastle and Gates Head Branch Association*, has recently conducted a flourishing course of instruction, embracing Botany and Pharmacy in the summer, and Chemistry and *Materia Medica* in the winter.

On the Continent of Europe several changes have come to our knowledge, though your Committee are but poorly informed of this branch of the subject submitted to them; the innumerable contributions to knowledge by the laborious German and French investigators, have been partially collated for this report, but the *personnel* of their authors is little known to us.

Elsewhere we chronicle the death of several eminent savants connected with scientific instruction, both in this country and in Europe, and under the head of Pharmaceutical Literature, have referred particularly to the Pharmacopœial revisions which have occurred in Bavaria and Belgium. Such changes as have come to our knowledge in the status of leading professors, and in the organization of the schools, both at home and abroad, we catalogue below.

Dr. Geo. B. Wood, Professor of Theory and Practice of Medicine, in the University of Pennsylvania, formerly Professor of *Materia Medica* in this University, and of Chemistry and

Materia Medica in the Philadelphia College of Pharmacy, one of the authors of the United States Dispensatory, has resigned his chair, and has embarked for an extended tour in Europe.

Dr. William Pepper, of Philadelphia, has been chosen to fill the chair vacated by Dr. Wood.

Prof. Israel J. Grahame, has resigned the professorship of Pharmacy, in the Maryland College of Pharmacy, and removed from the scene of his former usefulness in Baltimore.

L. Phillips, Pharmaceutist, of Baltimore, has been appointed to the professorship made vacant by the resignation of Prof. Grahame.

Robert Bentley, F. L. S., &c., late Professor of Botany and *Materia Medica*, in the Pharmaceutical Society of Great Britain, has been appointed to the chair of Botany in Kings College, London, made vacant by the death of Prof. Henfrey.

Dr. George W. Lawrence, has been elected Lecturer on Botany at the Middlesex Hospital, London.

D. J. Regnault, Pharmacien, of Paris, has been appointed to fill the vacancy occasioned by the death of Soubeiran, and the Faculty of Medicine, have organized the professorship on a new and extended basis, and named it the chair of Pharmacology.

M. Gautier de Claubry has been installed Professor of Toxicology at *L'école de Pharmacie* in Paris; Caventou retired with the title of honorary professor.

Berthelot has been promoted to the professorship of organic chemistry at the same Institution.

Professor Ehrenberg, of Berlin, has been elected foreign member of the Academie des Sciences, in the place of A. v. Humboldt.

Dr. Flückiger, president of the Swiss Apothecaries' Association, has been appointed State Apothecary, in Berne, Switzerland.

NECROLOGY.

Died, on the 7th of September last, Prof. Henfrey, well known as a histologist and vegetable physiologist; he was professor of Botany in Kings College, London, a fellow of the Royal and

Linnæan Societies, and enjoyed a high reputation for learning, and for social and domestic virtue. He died at the early age of thirty nine.

Died, on the 22d of November last, Dr. George Wilson, Professor of Technology in the University of Edinburgh, Regius Keeper of the Industrial Museum of Scotland, and Honorary member of the London Pharmaceutical Society. This eminent promoter of practical science, was much beloved by the Pharmacutists of Edinburgh. Shortly before his decease he was engaged in the delivery of a highly interesting address on the "Education of the Pharmaceutical Chemist," which was published in the London Pharmaceutical Journal, and copied into the American Druggists' Circular. The enlightened and progressive views maintained in this essay, entitle it to the careful consideration of Pharmacutists, both in England and in this country. Professor Wilson fell a victim, in the prime of life, to inflammation of the lungs.

Died, on the 10th of September last, Dr. Thomas Nuttall, the celebrated botanist, geologist and ornithologist; a native of Yorkshire, in England, he emigrated to the United States in early life, and resided for some years in Philadelphia. His travels were extensive, embracing California and Oregon, and he wrote several works upon Natural History, which have rendered his name familiar to the student. He terminated his long life at Nutgrove, Lancashire, England, in the 73d year of his age.

Died, in Paris, on the 29th of April last, Edmond Robiquet, Professor of Physics in L'Ecole de Pharmacie. This promising pharmaceutical savant was the son of the celebrated Robiquet; he died after an illness of three days.

Died, suddenly, on the 13th of May, Dr. Christian Gmelin, late professor of Chemistry in Tübingen.

Died, at Paris, on the 18th of December last, Germer Baillière, proprietor of the Repertoire de Pharmacie, and a noted publisher of scientific works. He was a native of Beauvais, France, and had reached the age of 54.

Died, Sept. 13, 1859, Fred. v. Jobst, a prominent druggist of Stuttgart, Germany, at the age of nearly 74 years.

Died, in April last, at Brighton, George W. Smith, former Secretary of the Pharmaceutical Society of Great Britain, in the service of which he was a respected and earnest member.

Died, on the 29th of June last, Robert Adolph Farmar, also one of the founders of the Pharmaceutical Society of Great Britain.

Died, on the 25th of March last, in Baltimore, Dr. Charles Fricke, Professor of Materia Medica in the University of Maryland, and formerly holding the same position in the Maryland College of Pharmacy. Dr. Fricke died of diphtheria, at the early age of 37; he was an amiable and estimable man, and a promising votary of science.

Died, on the 25th of January, in Cincinnati, Prof. James P. Espy, in the 75th year of his age. He occupied the position of meteorologist to the National Observatory at Washington. His theory of storms has been for many years the subject of discussion by meteorologists, and his name has become identified with his favorite science.

PHARMACEUTICAL LITERATURE.

The past year has witnessed no accession to the strictly pharmaceutical periodical literature of our country, though there have been some changes among the medical and scientific Journals, among which we notice with satisfaction the introduction of another well conducted weekly, the *American Medical Times*, published in New York, by Bailliere Brothers. Among the contributors, the name of Dr. E. R. Squibb gives promise of matter of pharmaceutical interest.

The *Peninsular and Independent Medical Journal*, the pharmaceutical department of which was under the editorial charge of our collaborator, Frederick Stearns, of Detroit, has been discontinued, we regret to say, on account of want of pecuniary support.

The *Louisville Medical News* is continued, with a pharmaceutical department, under the care of T. E. Jenkins, Pharmacist, of Louisville.

The subsequent part of this report will exhibit, by its large number of extracts from the *American Journal of Pharmacy*, how important an instrumentality that long established periodical continues to be. It has now reached its thirty-second volume, having been for fourteen years wholly, or in part, under the editorial charge of its present veteran editor, Professor Procter.

The *American Druggists' Circular and Chemical Gazette*, is continued in monthly issues of 24 quarto pages, which, notwithstanding the great display of advertisements, allows of the introduction of many voluminous essays, which would be beyond the capacity of the ordinary octavo journals. Under the head of notes and queries, a medium of communication is kept up between distant and widely different classes and localities, in which many formulas and processes are brought to light, and views and principles are discussed to mutual advantage. Essays on reform in weights and measures, on Sunday shop-keeping, on the education of the Pharmacist, (by Prof. Geo. Wilson,) have been published at length in its columns; among the extracted articles may also be mentioned Rimmel's extended essays on Perfumery; the series of essays from the London Pharmaceutical Journal on the cultivation of medicinal plants in Hitchen, Herts; and a series of papers on chemistry in its relation to Physiology, Medicine and Pharmacy.

The Druggist, published in Cincinnati, has been recently taken in hand by an esteemed pharmacist of that city, one of the original members of this Association, C. Augustus Smith, and some original articles from its columns will be found noted in our *resumé* of the results of the past year. It has also done a good work in exposing the unfounded pretensions of parties, who, under the guise of chemical knowledge, are riding the hobby of adulteration of liquors at a most extravagant rate.

The Journal and Transactions of the Maryland College of Pharmacy contributes its quarterly quota to the common stock, and continues to be edited by W. S. Thompson, Pharmacist, of Baltimore.

The Journal of Materia Medica, and Pharmaceutical Formulary, continues to be issued by Tilden & Co., from their labora-

tory at New Lebanon. Its speciality of indigenous materia medica is carefully kept in view, and numerous items of more general interest are displayed in its pages.

P. D. Orvis' Drug Reporter is a handsome weekly, issued by an enterprising druggist of New York city. It is composed largely of price currents, reviews of the markets and other information of commercial interest, to which is added scientific and practical information selected from the journals.

The periodical issues of our foreign co-laborers, compilations and extracts from which furnish so important a part of our own journals, are continued, we believe, with little change. The *London Pharmaceutical Journal* is still conducted with much ability, and continues a fit organ of the influential Pharmaceutical Society of Great Britain.

The Chemist and Druggist is the name of a new London monthly, conducted with much spirit, which is designed to include among its readers the large class of non-members of the Pharmaceutical Society; it has also obtained quite an extensive circulation in this and other foreign countries. In this monthly we notice a regular correspondence from the United States, and numerous items of American information such as do not generally appear in English periodicals.

One of the most useful of the English journals is *The Chemical News*, published weekly in London, William Crookes, editor; with which is combined the old Chemical Gazette. The Proceedings of the Royal Institution of Great Britain, of the Society of Arts, of the Chemical Society, of the Pharmaceutical Society,—institutions which give to the British metropolis a deserved pre-eminence,—are published in its columns, with notices of new discoveries in the several departments of applied and abstract science, notices of new books, &c.

The revision of the several Pharmacopœias of London, Edinburgh and Dublin, for the formation of a new consolidated *British Pharmacopœia*, is progressing favorably under the management of the ample Commission appointed for the purpose; its issue is promised in the approaching Spring. It is also said that the issue of a new *Paris Codex* is in contemplation.

The revision of our own *Pharmacopœia* has been the subject of much discussion in the several organizations, and in the journals, during the past year. The Fifth Decennial Convention which met in Washington on the 2d of May last, was attended by a fair representation of the medical and pharmaceutical organizations.

Perhaps no better evidence of the progress of our profession in education and influence can be instanced, than is furnished by the increased importance it has assumed in this professional legislation. The delegates of the Colleges of Pharmacy were equally associated with the medical men on the several temporary committees, and in the committee of final revision to which this most important work was intrusted they constitute a majority. The subject of the publication of a cheap edition of the *Pharmacopœia* for more general circulation was pressed upon the Convention in accordance with the resolutions of the last meeting of this Association; and a reform in this respect will certainly result. The discussion of the subject of weights and measures led to no definite instructions to the committee, so that the vexed question is still unsettled, though perhaps chiefly dependent upon the conclusion shown in the publication of the British *Pharmacopœia*. The addition of a pronouncing index to the work, so as to promote uniformity in the pronunciation of officinal names, was referred to the committee of revision with instructions to accomplish that desirable improvement if at all practicable. As far as your committee has been informed, the spirit of progress animates the revising committee, and the new *Pharmacopœia* will undoubtedly be a great advance upon any of its predecessors, and perhaps even upon some of those of our trans-atlantic brethren. The report on the revision, as adopted by this Association last year, in Boston, was by vote unanimously accepted and referred to the final committee.

Bavarian Pharmacopœia.—A new *Pharmacopœia* was published for the kingdom of Bavaria, in 1856. The revisional committee was composed of eleven members, among whom were the following, whose names are familiar to pharmacutists: Drs. Büchner, sen. and jun., Drs. Pettenkofer, sen. and jun., Drs. Von Vogel, sen. and Von Martius. The *Pharmacopœia* became the lawful guide

for preparing and dispensing medicines on January 1st, 1857. This edition was soon out of print, and a second edition was published towards the close of 1859. It differs from the former only in a few comparatively unimportant matters. The Pharmacopœia is published in the German language; all the crude drugs, chemicals and pharmaceutical preparations, are arranged in a single list in strictly alphabetical order. With but one or two exceptions, sanctioned by long usage, scientific names have been adopted in all cases. To prepare for a fully rational system of nomenclature, the proper terms have in some cases been added as synonyms, or in brackets after those now in use; as for instance *baccæ s. galbuli juniperi*, *semen (fructus) fœniculi*, *radix s. bulbus colchici*, &c. The new Pharmacopœia is a vast improvement on the old one, which was last published in 1822.

Prussian Pharmacopœia.—A revisional committee is at work to prepare the seventh edition of the Russian Pharmacopœia for the press. The German journals tell us, that it is to be a great deal less voluminous than the old one, published in 1846, inasmuch as most processes for preparing chemicals are to be omitted.

Swiss Pharmacopœia.—In the different cantons of Switzerland, different Pharmacopœias have been and are still legally authorized; in Geneva, a Pharmacopœia of 1780; in Ticino, one of 1843; in St. Gall, of 1844; Berne uses the Würtemberg Pharmacopœia of 1798; the other cantons, the 5th or 6th edition of the Prussian Pharmacopœia. A few years ago, the Swiss Apothecaries' Association elected a Committee to prepare a draught of a *Swiss Pharmacopœia*. Mr. Roder has been selected by the committee to finish this preliminary work, the last of which was published in the May number of the Swiss Journal of Pharmacy. It is now in the hands of a committee of five, who will have to report to the Swiss Association at their yearly meeting to be held in Berne, during the month of September.

A glance at the periodical literature in its more general features during the past year, may not be inappropriate in this place.

The English Journals have been much occupied with several subjects of local interest. The pressing necessity for appropria-

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ting the vast surplussage of decomposing and *effete* matter from the streets and sewers of the metropolis, has led to discussions upon the best disinfectants for such purposes, together with the practicability or otherwise of utilizing this sewerage for agricultural or other purposes.

The sale of poisons, and the adulteration of food, bills, which have been before Parliament, have led to a thorough discussion of the difficulties of legislation upon these and kindred subjects. The Smethurst poisoning case, which was so engrossing while it was pending in the courts, has led to investigations into the difficulties which beset scientific testimony in legal trials, and the real and imagined uncertainty of analytical processes.

One of the most important papers of the year is that of the late Prof. Wilson, of Edinburgh, on the Education of the Pharmaceutical Chemist; viewed as a plea for learners it is perhaps without a superior in our literature; some of its positions being different from those usually maintained have led to comments in the London Pharmaceutical Journal and elsewhere, and this subject, so little discussed in its scientific and practical bearings, is being revived as it deserves.

In this connection it may be proper to remark upon the recent movement for closing pharmaceutical stores on part of every Sabbath, to which, perhaps, the first impulse was given by a paragraph in that address. Our space will not allow of a full record of this movement, which has been somewhat discussed in the London Chemist and Druggist, and in the American Druggists' Circular, and has progressed so far in Philadelphia as to lead to the adoption of certain hours, which, on trial, were found to be ill-advised, and have been again adjusted by a very recent meeting of the Pharmacutists. A committee, previously appointed for the purpose, reported that all the wards of that city had been thoroughly canvassed except three. There were found two hundred and sixty apothecaries; one hundred and ninety-five were willing to close their respective places of business from 1 to 6 o'clock, P. M., on every Sunday, and this course was finally adopted in the belief that it would prove generally acceptable on trial.

This must be regarded as yet as an experiment. If found to be practicable, we believe it will extend, with modifications, throughout our country generally, and whether adopted finally or not, we regard it as a sign of waking up on the part of Pharmacutists to a better knowledge of their responsibilities and their rights.

Several able articles headed "Pharmaceutical Responsibilities and Rewards," "Pharmaceutical Qualifications," "Education and Examination," have appeared in the editorial department of the current volume of the London Pharmaceutical Journal.

In the English journals, we notice occasional extracts from our own periodicals; among these are papers from the Proceedings of this Association, several of which have also been translated for the German and French journals. It is to be regretted that from the illiberal postal arrangements for periodical literature with England, and from the absence of facilities for interchange with European associations, our contributions to pharmaceutical science, are so apt to be omitted from their *resumés*.

Your committee desire to tender thanks to Messrs. Schaefer & Koradi, Booksellers and Importers, at Philadelphia, for gratuitous aid in our hitherto very satisfactory interchange with the Swiss Pharmaceutical Association.

The Pharmacutists of *Ghent* have presented the world an example of comity and good fellowship in an agreement to mark every prescription with the price at which it was in the first instance compounded, and to adhere to that price in all its renewals, wherever it may be taken, thus providing against inequalities in price and the consequent gain to those who might otherwise secure business by underselling their neighbors.

NEW BOOKS.

Shortly after the adjournment of the last annual meeting, a second edition was published of *Parrish's Practical Pharmacy*. This is much enlarged and extended, particularly in the part devoted to Pharmacy in its relations to Organic Chemistry, and in the chapters on Extemporaneous Pharmacy. Of this work it is not appropriate for your committee to speak, except as far as the early demand for a second edition furnishes evidence of the increased attention which is being directed to the study and prac-

tice of Pharmacy, and to note the appreciation of this effort to fill up the void so long existing in this branch of literature. The reviews of this work, both in this country and in England, have awarded it a fair share of merit—that of the London Lancet is highly commendatory of Pharmacy in America.

Therapeutics and Materia Medica. By Alfred Stillé, M. D., is an elaborate work in 2 volumes, published in Philadelphia during the past year; though strictly a medical book, and perhaps of less utility to Pharmacutists than was expected, it displays careful and laborious research, and is written in a clear and perspicuous style.

The Manufacture of Photogene or Hydrocarbon Oils from Coal and other bituminous substances, capable of supplying burning fluids. By Thomas Antisell, M. D., Professor of Chemistry in Georgetown College, D. C. This is an instructive monograph upon a subject which is just now claiming a great deal of attention, and as an original American work we bespeak for it the favorable consideration of all interested.

Handbook of Chemical Manipulations. By C. Greville Williams, late assistant in the laboratories of the Universities of Edinburgh and Glasgow. This work we have not seen, but doubt not it is a useful addition to the list of Laboratory Handbooks.

Proximate Analysis of Plants and Vegetable Substances. By Frederick Rochleder, M. D. This original work had been translated for republication in the United States by a member of this Association, but sought a publisher in vain, when the London Pharmaceutical Journal commenced in May last its publication in a serial form in its monthly issues. We learn that it is in contemplation by the American Journal of Pharmacy to pursue the same plan, so as to render it available to the Chemists and Pharmacutists of the United States.

Curiosities of Science. Second Series. A book for Old and Young. By John Timbs, F. S. A., London. Though not a systematic treatise, this work relates chiefly to Chemistry, and is much occupied with historical matters, alchemy, etc.

Introductory Lectures and Addresses on Medical Subjects, delivered chiefly before the medical classes of the University of

Pennsylvania. By George B. Wood, M. D., of Philadelphia.—1850. A compilation of many interesting essays—occasional efforts during a quarter of a century of one of the most accomplished and laborious of medical teachers.

A Medico-Legal Treatise on Mal-practice and Medical Evidence, comprising the elements of Medical Jurisprudence. By John J. Elwell, M. D., New York: 1860. This book, though chiefly addressed to Physicians and Lawyers, discusses also some of the responsibilities of Druggists.

Micrographic Dictionary. By J. W. Griffith, M. D., and the late Prof. Henfrey. A second edition of this valuable work has been issued by the London publishers.

Glycerin and Cod Liver Oil. Their history, introduction, therapeutic value, etc. By W. B. Willmott, London.

The Seven Sisters of Sleep. A popular and amusing history of Tobacco, Opium, Hemp, Betel, Coca, Thornapple, and Amanita. London.

Chronic Aleoholic Intoxication, or alcoholic stimulants in connection with the nervous system. By W. Marcet, M. D., &c., London.

The Chemistry of the Non-Metallic Elements and their Compounds—Air, Water, the Gasses, the Acids; and a summary of Organic Chemistry, including a comprehensive course of class experiments. By John Joseph Griffin, F. C. S. Illustrated by 440 engravings of apparatus. London: 1860.

A Manual of Pharmacy for the Student of Veterinary Medicine. By W. J. T. Morton. 6th edition. London.

Lectures on the Physical Forces. By Prof. Faraday. Published originally in the London Chemical News as a verbatim report, with illustrations, and since issued in a small 12mo. volume. These lectures were delivered at the Royal Institution; they are quite elementary and admirably adapted to interest the tyro in Philosophical studies.

Educational Uses of Museums. By Prof. E. Forbes, of Kensington Museum, London.

The Manufacture of Vinegar, its theory and practice, with

special reference to the quick process. By Charles M. Wetherill, Ph. D., M. D., Philadelphia. A monograph by an American author of thorough scientific attainments. This book, which is based on that of Prof. Otto, is commended to all interested in the important branch of manufacture of which it treats.

On the Impurities in Commercial Zinc, &c. By Charles W. Eliot and Frank H. Storer. A monograph reprinted from the memoirs of the American Academy of Arts and Sciences.

Introductory Course of Natural Philosophy. By William G. Peck, M. A., Professor of Mathematics, Columbia College, New York. This work is for the most part a translation of "Ganot's Popular Physics."

The Fruit-Preserver's Manual. By S. Culver. A work describing a variety of processes for preserving vegetables and fruit.

Physiology of Common Life. By George Henry Lewes.

Three Years in Turkey. The journal of a medical mission to the Jews. By John Mason, L. R. N. S. E.

American Weeds and Useful Plants, or Agricultural Botany. By W. Darlington, M. D., with additions by George Thurber. New York: 1859.

The Canadian Naturalist and Geologist, and Proceedings of the Natural History Society of Montreal.

Figures and Descriptions of Canadian Organic Remains. Montreal: 1859.

Beaseley's Pocket Formulary, 7th edition. London.

Manual for Students Preparing for Examination at Apothecaries' Hall, or other Medical Institutions. By W. Meade. 3d edition, revised and corrected. London.

Journal of the Proceedings of the Linnæan Society. London.

The Elements of Botany on the Natural System. By Anna J. Buckland. London.

The Rudiments of Botany, Structural and Physiological: Being an introduction to the study of the Vegetable Kingdom, and comprising the advantage of a full glossary of Technical terms. By Christopher Dresser. London.

Unity in Variety, as Deduced from the Vegetable Kingdom: Being an attempt at developing that oneness which is discoverable in the habits, mode of growth, and principle of construction of all Plants. By Christopher Dresser. London.

British Wild Flowers. J. E. Sowerby. London.

Botanist's Companion. J. H. Balfour.

Cybele Britannica, or British Plants and their geographical relations. By Hewett Cottrell Watson.

The Nature-Printed British Sea-Weeds: A history, accompanied by figures and dissections of the Algæ of the British Isles. By William Grisart Johnstone and Alexander Croall. London.

Illustrations of the Nueva Quinologia of Pavon, with colored plates, and observations on the barks described. By John Eliot Howard. London.

Tobacco, its History and Associations, Illustrated. By F. W. Fairholt. London.

French Wines and Vineyards, and the way to find them. By Cyrus Redding. London: 1860.

Flora of the Southern United States. By A. W. Chapman, M. D. New York: Ivison & Phinney. A useful and original work, filling a blank long recognized in our literature.

Manufacture of Liquors, Wines and Cordials. By Pierre Lacour. To all who desire to perfect themselves in the art of adulteration, this book may certainly be commended.

Miller's Chemistry: A new and elaborate work. By Prof. William Allen Miller. 3 vols. London: 1860.

GERMAN WORKS.

Dr. O. A. Ziurek. *Elementar-Handbuch der Pharmacie mit Holzschnitten.* Erlangen, published by F. Enke

H. Hanstein. *Verbreitung und Wachsthum der Pflanzen in ihrem verhältniss zum Baden.* Darmstadt.

Dr. F. X. Schmidt. *Anleitung zur Prüfung der chemischen Arzneimittel.* Erlangen, F. Enke.

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Des Eaux thermo minerales chlorurées sodique de Bourbonne les Bains. Emile Renard.

Caoutchouc duré et pâte à Empreints. L. N. Winderling, Dentiste. Metz.

THE DRUG MARKET.

It has been the expectation that this Committee should report the amount of imports of crude drugs and preparations, as ascertained through the Custom Houses, the amount rejected on account of inferiority, and other matters of interest connected with our foreign commerce; but this practice was discontinued last year, and is not now resumed from want of leisure and ability to obtain the requisite data, and to compile and arrange the facts so as to be of use to the pharmacologist. Through the enterprize of Dr. L. V. Newton, of the American Druggists' Circular, we have access to a monthly review of the New York Market, by F. B. Nichols, with a full list of Drug Importations, their quantities and values, which, by classification and summing up annually, would afford much useful information; and should the funds of the Association warrant the employment of a competent person having the necessary facilities for obtaining this kind of information, we think a thorough and systematic report, including import and export, might well be published annually in our Proceedings.

In the department of home production, we have only to record the remarkable Rock Oil excitement, which has had so rapid an extension during the past year, owing to the discovery of apparently almost inexhaustible supplies of petroleum in the State of Pennsylvania. This excitement has led to a great deal of speculation, and the production of greatly increased quantities of burning and lubricating oils, which in fact have become of late years very important articles of commerce, and are constantly seeking new uses in the arts. According to a recent writer, the daily manufacture of coal oil in this country reaches 22,750 gallons, employing in its purification and rectification 2000 hands. See "Scientific American," and "London Chem. News," Jan. 28, and March 17, 1860.

In the manufacture of Chemical and Pharmaceutical products, the usual activity is maintained; the demand for the Cinchona Alkaloids has, perhaps, diminished within the last two or three years, owing to a falling off, in the valley of the Mississippi, of those stubborn periodical diseases, in the treatment of which these remedies are so indispensable.

The price of Sulphate of Quinia has kept much below the ay-

erage of a series of years, and has only now taken a decided, and it is believed, permanent advance.

Opium has maintained about an average price, with less fluctuation than usual. Iodine and its salts are abundant and cheap. Ergot has been unusually scarce, and notwithstanding its production in our own country in such undesirable abundance, much that reaches the consumer is imported from abroad. The enormous importations of Gum Arabic have kept the price of this article, in its various shades of quality, unprecedentedly low. Cardamoms have been, and still are, very scarce, and, strange to record, so common a drug as Chamomile flowers has sold during the last few months at fully three times its usual price. Camphor has recently advanced near 50 per cent. in price. Liquorice, Manna and Jalap may be mentioned as instances of important articles which are unusually scarce at this time.

We are aware that these facts are familiar to most of our members, and we forbear to dwell on subjects so common-place, though aware that in their true import they are closely connected with the interesting subject intrusted to this Committee.

The prevailing therapeutical tendencies are undoubtedly subjects in the highest degree interesting to pharmacutists, but for similar reasons are not well adapted to this Report. Tonics appear to be increasingly in favor, and nervous and cerebral stimulants are prescribed where formerly blood-letting, antimony and mercury were in vogue. Iron is still the favorite basis for new and fashionable preparations, and indeed there is no class of preparations that better illustrates the progress of modern pharmacy than the ferruginous compounds, now so numerous, so varied and so elegant.

We note a general increase on the Atlantic seaboard, as well as in the West, of the use of the so-called Eclectic remedies; this practice among regular practitioners is an indication of greater liberality, and a disposition to avail themselves of all the resources at their command, while it has induced a greater number of pharmacutists to prepare them as the demand arises. Podophyllin, especially, is now recognized as a valuable remedy both in this country and in England, and it is believed will be introduced into our forthcoming Pharmacopœia.

Sanguinaria, *Prunus Virginiana*, and *Cimicifuga* are beginning to take positions in the *Materia Medica* of Great Britain, along with *Spigelia*, *Serpentaria* and *Lobelia*, while Citrate of Magnesia, which, in the form of solution, has been a very popular officinal remedy in this country for ten years, is just now coming into very general use in England as an effervescing powder, and has actually been imported here from English houses.

The "Era of the Phosphates," which was at its height at the date of the last Annual Report, though it has not yet entirely passed away from American Pharmacy, has been measurably transferred to England, where excellent formulas have appeared for a variety of preparations of the phosphates, and an active business appears to be doing in them in certain quarters.

The use of the Hypophosphites has continued to increase throughout most of the year for which we are reporting, both here and on the continent, though there are few subjects about which it may be more truly said that doctors disagree. Dr. Richard Quain reports twenty-two cases of phthisis, in different stages of advancement, treated for longer or shorter periods, without any perceptible effects, except in six cases, in only three of which was there any marked improvement, and in one only was the improvement permanent.

Another English physician, however, reports about twenty cases, in which the Hypophosphites have produced great increase of appetite, in some cases an increase of animal heat, and a marked diminution of expectoration in every case; the patients also expressing a feeling of improvement in their breathing power.

Dr. Dickson, of Jersey, writes to the *Lancet* that he has tried the remedy in about thirty cases in every stage of the disease, and the improvement has been very marked in about two-thirds; he finds its power of checking night sweats makes it very useful in all stages. Having induced several medical friends to try the treatment on their patients, they have reported its results to Dr. D. as most extraordinary. (Braithwaite's Retrospect, Part 41st.)

If we were to add to these reports, those of numerous practitioners in this country who have tried these remedies, we should increase the diversity, and fill the space which can be more appropriately occupied with the customary memoranda of improve-

ments in the several departments of materia medica, pharmacy, organic and inorganic chemistry and toxicology.

MATERIA MEDICA.

Root of Hibiscus Esculentus, Okra.—This plant, originally from the East Indies, has become well known from the employment of its fruit in soups. G. Della Sudda states in Répert. de Pharm. (Jan. 1860,) that its root is largely employed in Constantinople and the East, as a demulcent, yielding double the quantity of mucilage; the powder is perfectly white.

Veratrum Viride, in inflammation of the lungs.—Dr. B. F. Schenck reports to the Medical Society of Lebanon Co., Pa., 107 cases of pneumonia, bronchitis, croup and pleurisy, in which he used this remedy with excellent results. This drug has been introduced into England.

Disinfectants.—A long article describing in detail the various disinfectants in use.—(Druggists' Circular, Aug. 1860.)

Magnesiae Citras, in Periodontitis.—Dr. McQuillin, of Philadelphia, reports a case in the Dental Cosmos.—(Ibid.)

Æsculus Glabra, Buck Eye.—Dr. James Crooks publishes in the "College Journal" an article on the uses of this tree; the bark has long been used to produce inebriation in fish, with a view to their capture; the intoxicating effect of the fruit upon cattle is also well known.—(See Druggists' Circular, Nov. 1859.)

The Oil of Horse Chestnut is lately imported from France as a specific remedy in neuralgia; it has also been made in this country by the use of ether.

Manufacture of Otto of Roses.—Proceedings of Pharm. Soc. of G. B. in London Pharm. Journ., Nov. 1859.—(Am. Jour of Pharm. vol. xxxii. p 68.)

Liquidambar styraciflua.—Description and analysis of this valuable balsam, by Wm. Pryor Creecy.—(Am. Journ. Pharm. vol. xxxii. p. 197.)

The Galls of Cynips, Quercus petioli.—The prevalence of this insect among the oak trees of England, and the production of the peculiar kind of nut galls which follow the deposition of its *larvæ*, has recently attracted attention to the use of these galls, as a substitute for the other varieties of commerce. Analysis shows that they are greatly inferior in the proportion of tannic and gallic acids, and hence, incapable of substituting them. Their effect upon the growth of young oaks is very unfavorable. Fifth Report on Noxious Insects, to the State Agricultural Society of New York.—(Gardener's Chronicle, London, Pharm. Journal, March. 1860.)

Therapeutic properties of Sarsaparilla.—The Edinburgh Medical Journal, publishes observations by Prof. Böcker to Dr. A. M. Adams, and by him communicated, to the effect, that he finds sarsaparilla destitute of both diuretic and diaphoretic properties.—(Am. Journ. Pharm. vol. xxxi. p. 568.)

Mistletoe—the Viscum Album and Viscum Quericinum.—An essay on the Pharmacology of these plants from Büchner's Repertoireum, is published in the Chemical News, Dec. 31, 1858.

The leaves of the Castor Oil Plant.—At a meeting of the Medical Society of London, Dr. Routh exhibited preparations of this plant, which he had used with remarkable effect as a lactagogue remedy. The external use of decoctions and cataplasms made from plants of this family, was long since known to the Spaniards in Peru and Chili, and to the inhabitants of Boa Vista, in the Cape de Verd Islands, as useful in promoting the flow of milk. The leaves used in the cases treated by Dr. Routh were brought from Australia.

Oxalate of Cerium.—Prof. Simpson's remarks on this remedy being republished in this country, an active demand has sprung up, which created at one time a great advance in price. It is now much prescribed.

Comparative value of different species of Aconite.—See London Chem. News, Feb. 4, 1860, from Répert. de Pharm.; also Am. Jour. Pharm.

Vegetable Tallow.—This is a South American product, which has been received at the Agricultural bureau of the Patent Office, through the U. S. minister at Guatemala. It is described in the Scientific American (Am. Jour. Pharm. vol. xxxii. p. 466.)

Japan Wax.—The subject of "Japan Wax" has claimed much attention of late, considerable quantities having been imported into this country from London, where very large quantities have been received. Its fusing point is below that of true wax, but it appears to be capable of many economical uses.—(See London Pharm. Journ. Sept. 18, 59, also Am. Journ. Pharm. vol. xxx. p. 561, and vol. xxxii. p. 311.)

A New Surgical Disinfectant.—MM. Demeaux and Corne have introduced into the Paris Hospitals the use of 100 parts plaster of Paris in powder, and 1 to 3 parts coal tar, thoroughly triturated together; to be applied in powder, or a paste made with olive oil.

Mr. Crace Calvert, of Manchester, has experimented on this disinfectant, and attributes its value entirely to the carbolic acid present.—(Lond. Pharm. Journ. Oct. 1859, Am. Journ. Pharm. vol. xxxi. p. 579.)

African Turmeric.—Dr. Wm. F. Daniell, in an article in the Lond. Pharm. Journ. Nov. 1859, announces the botanical origin of these rhizomes to be the *Canna speciosa*.—(See Am. Journ. Pharm. vol. xxxii. p. 58.)

Protein.—Dr. J. C. Hupp, of Wheeling, Va., describes the uses to which protein is applicable in medicine, in the *Am. Journ. Pharm.* vol. xxxi. p. 402.

Phosphate of Iron.—Prof. Procter calls attention to the facility of prescribing this salt with the citrates, so as to form convenient solutions. (*Am. Journ. Pharm.* vol. xxxi. p. 402.)

Salep.—De Landerer gives some information on the collection of the bulbs of orchis which yield the salep.—(*Büchner's N. Repert.*)

Pulu and some analogous products of Ferns.—An account of this curious product of the Sandwich Islands is given by M. C. Cooke.—(*Pharm Journ.* April 2.)

Vineyards, Produce and Profits.—An elaborate article from the *Cincinnati Gazette*, in *Am. Druggists' Circular*, Feb. 1860.

The manufactured product of sea-weed called Japanese Isinglass.—Note by D. Hanbury.—(*Ibid.*)

Castor Oil.—In Algeria the *Palma Christi* is very abundant, and recently it has been turned to account—the leaves for the feeding of silk worms and the seed for the production of oil, and the fibres as a textile material. (*Journ. de Chimie Med. and Pharm. Journ.*)

Tragacanth.—Landerer reports that tragacanth is collected in Greece, from *Astragalus creticus* and *uricolatus*. The gum is white in dry seasons. It is exported from Patras, as Monka or Peloponesian tragacanth. In Syria, tragacanth is obtained from *A. gummifer*, the best from *A. verus*, growing plentifully in Persia and Asia Minor; it is exported from Smyrna.—(*Schw. z. f. Ph. v.*)

Combustibility of Tobacco.—The French Academy of Sciences have published the researches of M. Schlössing, on the composition of the ashes of the different kinds of tobacco; also on the means of increasing or diminishing this combustibility.—(*Pharm. Journ.* May, 1860.)

New Species of Honey Bee.—*Apis ligustica* or Ligurian Bee, has been introduced with success in Germany, and also in the apiaries of the Apiarian Society, Devonshire and Muswell Hill, England.—(*Ibid.*)

Cotton and Coffee in New Zealand.—Attempts are being made to introduce these plants as agricultural products of New Zealand.

Propylamin.—Dr. R. H. Stabler gives in the *Amer. Jour. Pharm.* vol. xxxii. p. 111, his experience, and that of other practitioners, in favor of this remedy especially in acute rheumatism.

Opium as a Therapeutic Agent, is the title of an elaborate article by Dr. E. R. Squibb.—(*Am. Journ. Pharm.* vol. xxxii. p. 115.)

Seat of the Vesicating principle of Lytta Vittata.—Prof. Leidy has experimented on this subject, finding the vesicating property to belong to the blood, the peculiar fatty substance of certain accessory glands of the

generative apparatus, and to the eggs.—(Am. Jour. Med. Sciences, Jan. 1860, and Am. Jour. Pharmacy, vol. xxxii. p. 157.)

Santonate of Protozide of Mercury.—This salt is described as an "excellent vermifuge," and a formula given.—(Arch. der Pharm., Nov. 1859. Am. Jour. Phar., vol. xxxii., p. 159.)

Malambo.—The origin of this bark, which has so long been involved in obscurity, has been at length settled, and the plant beautifully figured as *Croton Malambo*, in a splendid work by Mr. H. Karsten, of Berlin. entitled, *Flora Columbiae Terrarumque adjacentium, Specimina selecta.*—(See, also, London Pharm. Jour., Dec. 1859, and Am. Jour. Pharm. vol. xxxii., p. 161.)

Elaterium.—The London Pharm. Journal gives an account of the cultivation and manufacture of this product at Hitchin.—(See Am. Jour. Pharm., vol. xxxii., p. 163.)

Saccharated Lime.—Dr John Cleland, who recommends lime to be dissolved in water by the aid of sugar, so as to contain 18 grains of lime to the ounce, asserts that it is a valuable antacid and tonic to the alimentary system in dyspepsia, without being in the slightest degree astringent.—(Edinburgh Med. Jour. Am. Jour. Med. Sciences, Jan. 1860.)

Native Country of the Potato.—Dr. Weddell comes to the conclusion that the potato is indigenous to Chili rather than Peru.—(London Pharm. Jour., Dec. 1859.)

The Tea Tree in India.—Mr. Henry Mann has introduced the Tea Tree into Southern India.—(Ibid.)

Ozonized Oils.—The uses of ozone in combination with oils in medicine.—(Chemist and Druggist, Feb. 15.)

Collection and Preservation of Plants.—A useful illustrated paper on this subject, with special reference to herbaria, will be found in the London Chemist and Druggist, May 15, 1860.

Fixed Oil of Pistacia lentiscus.—M. Leprieur, in the Journal de Pharmacie, describes the preparation and uses of this oil in Algeria.—(Am. Jour. Pharm., vol. xxxii., p. 319.)

Kamela, Rottlera Tinctoria.—Its history, properties, medical uses, dose, &c.—(From the London Chemist and Druggist, in Am. Journal Pharm., vol. xxxii., p. 324.)

California Beer Plant.—The editor of the American Journal of Pharmacy, commenting on this, which is supposed by Dr. Bowling, of Nashville, to be identical with *Torula cerevisiæ*, asks, cannot some of our California friends give a history of this substance?

The Poison Oak and its Antidote.—Dr. C. A. Canfield, of Monterey, California, calls attention, through the "Pacific Sentinel," to an indigenous plant growing abundantly in California, *Grindelia hirsutula*, the decoction of which is a specific against the painful cutaneous disease pro-

duced by *Rhus Toxicodendron*.—(American Jour. Pharm., vol. xxxii., p. 413.)

Coca.—Essay on the dietetic and medicinal properties of *Erythroxylon coca*, by Dr. Montegazza.—(Abstract from London Pharm. Jour. Am. Jour. Pharm., vol. xxxii., p. 417.)

Bassia Flowers.—(Essay from the London Pharm. Journal, June, 1860, in Am. Jour. Pharm., vol. xxxii., p. 421.)

Persian Berries and Madder.—Notes on the commercial history of these drugs.—(Am. Jour. Pharm., vol. xxxii., p. 466.)

Smilax aspera.—Landerer reports, on the poisonous properties of this plant. Being eaten by animals, it produces dysentery, bloody-urine, and death.—(Büchn. N. Rep., viii.)

Croupee, or Touloucouna-oil, is produced from the fruit of *Carapa-touloucouna*, Guill. and Perret, s. C. guinensis, Don. The fruit is repeatedly dried and boiled, and the oil removed from the surface. This drying oil is very bitter, and used by the inhabitants of Western Africa for illuminating purposes, externally against skin diseases, and internally to destroy tænia.—Büchner's N. Rep., viii.)

Radix Iwarancusæ, obtained, probably, from *Anatherum muricatum*. Pall. de B. is employed in Oriental countries, according to Landerer, in hysterics, likewise against moths.—(Büchner's N. Rep., ix.)

Collection of Scammony in Asia Minor.—Prof. Charles Bourlier, of the Algiers Medical School, describes the process of collecting and preparing this drug by the peasants in the northern part of Asia Minor.—(Jour. Md. Col. Pharm., Dec. 1859, from Gazette Med. d'Alger.)

Polygonum aviculare.—This astringent is described in the Gazette des Hopitaux.—(See Md. Col. Pharm., Dec., 1850.)

Paracacy, a Vegetable Antidote for Snake-bites.—Essay on this Brazilian production.—(From Archivén der Pharm. American Drug. Circular, Jan., 1860.)

Lycoperdon giganteum an anæsthetic.—Dr. Richardson, of London, in lecturing recently, compares this with other narcotics used by inhalation.—(See Am. Druggists' Circular, Feb., 1860.)

The use of Potash in some cutaneous diseases.—A paper read before the Boston Society for Medical Observation, by Dr. James C. White.—(Boston Med. and Surg. Jour.—Ibid.)

Ailanthus Glandulosa, a remedy for Tænia.—Prof. Hetet, of the Naval School of Toulon, has used the leaves and bark in tape-worm. His cases are reported in Jour. de Chim. Med., Dec., 1859.—(See Jour. Md. Col. Pharm., March, 1860.)

Arabian Manna.—Dr. Landerer, pharmacist to the King of Greece, &c., gives some account of this substance.—(Ibid.)

Extract of Cannabis in the cure of Gonorrhœa.—Observations of Doctor

Mooney, in the Oglethorpe Medical and Surgical Journal.—(Druggists' Circular, March, 1860.)

Extract of Conium in Gonorrhœa.—Dr. A. H. Stevens advocates this treatment in the Medical and Surgical Reporter.—(Druggists' Circular, May, 1860.)

Iodide of Ammonium in Syphilis.—M. Gamberini, of Bologna, publishes conclusions favorable to this treatment.—(Bull. de Therap. Ibid.)

Ether in Deafness.—M^{lle}. Cleret, having previously made the important discovery of the utility of ether dropped into the ear as a remedy for deafness, Dr. Lefargue has recently communicated to the Bulletin de Therapeutique the case of a deaf and dumb boy cured by this new treatment. Eight drops of ether were instilled into each ear.

Consumption of Opium.—An estimate published in the London News for July 7th, 1860, states the late crop of Smyrna opium at 3,600 baskets of about 140 lbs. each. The average consumption of different countries is estimated as follows: England 400 baskets, America 900, China 1,000, Java 500, Borneo 100, France 80, and Germany 60 baskets.

Talcahuano Arrowroot.—Prof. Carson, of the University of Pennsylvania, publishes in the American Journal of Pharmacy, (vol. xxxii. p. 289) an essay on the fecula of *Alstrœmeria*, called by this name.

Source of Balsam of Peru.—Prof. Carson writes on this subject, giving a letter from Dr. Charles Dorat, and a plate of *Myrospermum Peruiferum*—(Am. Jour. Pharm., vol. xxxii., pp. 296 and 302.) In the same journal, page 411, D. Hanbury makes some further observations on this subject.

Penghawar Jambi.—Dr. Vinke of St. Petersburg, Russia, found that while Penghawar jambi coagulates blood in 2 min. 18 sec., the same blood is coagulated by the same weight of bovista (*Lycoperdon bovista*) in 7 minutes, by sponge in 8½ min., by spunk (*Boletus fomentarius*) in 10 min. 52 sec. The Penghawar jambi acts by absorbing the water, with the dissolved salts and albumen. This action is not lessened by the previous treatment with hot water, alcohol, ether, caustic potassa, and diluted acids, unless the cellular structure has been destroyed. Dr. V. quotes 15 cases in which he has used it with the greatest success. It has no effect on internal hæmorrhages.—(Medic. Zeit. Russt., Witts. v., Schr. ix.)

Selinum palustre, Lin., *Peucedanum palustre*, Mænoch.—Dr. Th. Herpin directs attention to the root of this plant, which is a good remedy in epilepsy. 30 grammes of the powdered root are given the first week; the dose is increased 15 grammes weekly until it reaches 125 grammes. It was formerly officinal under the name of Radix Olsnitii, s. Thysselini.—(Jour. de Pharm. et de Chim., xxxvi. Wittstein's v. Schr. ix.)

Opiated Wine of Colchicum in Rheumatism.—Dr. Eisenmann, of Wurzburg, finds great advantage in the use of opium and colchicum

jointly, by which the properties of both drugs are modified favorably, under the name of Eisenmann's Drops. The following combination is prescribed: 12 parts of colchicum wine and 2 of tincture of opium are to be mixed and given in a dose of 20 drops 3 times a day. He prefers the formula of the Prussian Pharmacopœia for wine of colchicum, which directs 150 parts of colchicum seeds to be macerated in 777 of alcohol.—(Med. Times and Gazette, April, 1860, from Bull. de Therap.)

Tetanus treated with Woorara.—T. Spencer Wells, surgeon to the Samaritan Hospital, reports three cases of tetanus treated with this powerful remedy, inoculated into the arms. Two recovered.—(Lancet, Dec. 3d, 1859.)

Chloroform in Tetanus.—A case which terminated favorably was treated with chloroform, 3 drops every half hour given by the stomach.

Sulphate of Atropine, by hypodermic injection, in rheumatism.—Cases are reported in the medical journals, showing the almost specific effect of a solution of sulphate of atropia, 2 grains to an ounce of water, injected in the dose of 30 minims, under the skin, as near as possible to the seat of pain.

Perchloride of Iron.—A desperate case of hæmorrhage from the nose is reported by Dr. Fountain Davenport, of Iowa, in which life was saved at the last extremity by an injection of strong solution of this salt. A case of obstinate hæmorrhage from the tonsils after incision, occurring in one of the English hospitals, was also arrested by its use. The *Lancet* contains a caution in regard to its use, founded on its occasioning inflammation. Does not this result from want of care in its preparation?—(See, also, London Pharm. Jour., Oct. 1859, and Am. Jour. Pharm., vol. xxxii., p. 332.)

Arnica.—M. Henry, Esq., surgeon of Middlesex Hospital, writes in the *Lancet* in favor of the great utility of arnica as an application to bruises and wounds. He uses the tincture largely diluted with water, 2 drachms to an ounce being the strongest application, and gives the tincture internally in dose of 5 minims every 4 to 6 hours. This serves as an offset to the frequent assertion of some practitioners that it is quite inert and useless.

Cornelian Cherry.—The fruit of *Cornus mascula*, which grows plentifully in the gardens of Greece, is greatly prized by the Turks for its agreeable acid flavor. A syrup made from its fruit resembles that of raspberries. Its flowers are used in diarrhœa and hæmorrhages.—(Dublin Hospital Gazette.)

Preservation of Plants.—Essay by John Rich, M. D.—(From Southern Medical Review. Am. Druggists' Circular, March, 1860.)

Collection and Preservation of Botanical Specimens.—(See a good practical essay on this subject in the London Druggist and Chemist, May, 1860; also London Pharm. Jour., Oct., 1859.)

Anthemis Nobilis.—Prof. Bentley gives a paper on the detection of adulterations in the Roman chamomile flowers, with drawings, in the London Pharm. Journal, March, 1860.

Sanguinaria Canadensis.—An elaborate article on the characteristics, composition and preparation of this drug, by Dr. George D. Gibb, of London, appears in the London Pharm. Journal, March, 1860.

Tannate of Bismuth.—M. Cap, of Paris, has drawn attention to the valuable medical properties of this salt; dose 30 to 60 grains in diarrhœa, either chronic or acute.—(London Pharm. Jour., March, 1860. From Bulletin de l'Acad. Imp. de Med.)

Chromic Acid in Granular Ophthalmia.—Dr. F. Hairion cauterizes with chromic acid dissolved in an equal part of water.—(Gaz. Med. de Paris, 1859. Buchner's N. Rept., ix.)

Chinese Moss.—An interesting paper by M. Payen, translated by D. Hanbury, is published in the London Pharm. Journal, March, 1860.

Anæsthesia and Anæsthetics.—Dr. Berand has communicated to the French Academy a new method of administering chloroform by one nostril, and with the aid of an apparatus ingeniously adapted to regulating the quantity and rapidity of the inhalation.—(London Pharm. Journal, Feb., 1860. From the Times.)

Dr. E. R. Squibb contributes an elaborate paper to the American Medical Times, June 2d, 1860, on the whole subject, and especially on the comparative utility of the two principal anæsthetics.—(See, also, Dental Cosmos for June, 1860, for a discussion on this subject, reported by Dr. George T. Barber; also, Am. Drug. Circular, Aug., 1860, for remarks on *Anæsthesia*.)

Dugong Oil.—W. T. Fewtrell reports his observations on some specimens of this oil, from Comptes Rendus.—(Am. Journ. Pharm. vol. xxxii. p. 230.)

Soap Bark of South America.—Profs. S. Bleekrode, Delft, Holland, publishes an account of *Quillaya saponaria*—from Journ. of Soc. of Arts.—(Am. Journ. Pharm. vol. xxxii. p. 242.)

Note on Cowrie Resin.—By Dr. E. Donnelly of Philadelphia —(Am. Journ. vol. xxxii. p. 199.)

Statistics of Indigenous Roots, Barks, &c., and their products.—An editorial article in The Druggist, Cincinnati, June 15th, 1860.

PHARMACY.

Saccharated Solution of Lime.—Dr. Cleland has introduced a Solution of Lime in Syrup in preference to ordinary lime water—18 grains of lime are dissolved in each ounce by the aid of sugar.—(London Pharm. Journ. Sept. 1859. See also, Am. Journ. Med. Sci. Jan. 1850, and Am. Journ. Pharm. vol. xxxii. p. 167.)

Deliquesced Perchloride of Iron.—J. Zachariah Smith, in the Medical Gazette, recommends the thick brown supersaturated fluid resulting from the deliquescence of the solid perchloride as the very best application of the salt to a bleeding surface.

Monsell's Persulphate of Iron.—Geo. S. Dicky, Jr., of San Francisco, Cal., furnishes a formula.—(Am. Journ. Pharm. vol. xxxii. p. 10, and Dr. E. R. Squibb also publishes a formula with observations.—Ibid. p. 33.)

Cleaning Glasses and Capsules.—Adhering organic matters frequently become so insoluble as to be removed with the utmost difficulty. Dingers' *Polytechn. Journal* recommends moistening with Sulphuric Acid and sprinkling on bichromate of potassa; after standing some hours in a warm place, the organic matters are found to be destroyed and the sulphate of chromium readily removable by water.

Saltetre in Hyoscyamus.—Dr. F. Mahla, of Chicago, has recorded a case of the precipitation of a considerable quantity of nitrate of potassa in the course of the evaporation of a tincture for the preparation of the alcoholic extract; he estimates the yield of the salt at 1 part from 50 of the leaves.

Medicated Biscuits.—M. Faber, of Arles, recommends several formulas for purgative vermifuge biscuits.—(See Am. Journ. Pharm. vol. xxxi. p. 414.)

Oleate of Binoxide of Mercury.—Prof. Jennel, of Bordeaux, gives a formula for an oily solution containing oxide of mercury.—(Rép. de Pharm. Mai, 1859, and Am. Journ. Pharm. vol. xxxi. p. 415.)

Process for ascertaining the Proportion of Quinine in Bark.—M. Guillaumond has published a modification of his former process in the *Gazette Medicale de Lyons*.—(Am. Journ. Pharm. vol. xxxi. p. 426.)

Pills of Carbonate of Ammonia.—A new formulary by Dr. John Williams, of Cork, is published in the Lond. Pharm. Journ. Feb. 1860.

Mercury with Chalk.—An interesting paper on the composition of this well known remedy used in England under the name of Grey powder is contributed by Prof. Redwood, to the London Pharm. Journ. March, 1860.

A New Use of Gun Cotton.—Prof. Boettger recommends Gun Cotton for the filtration of strong acids and alkalies and of liquids readily decomposed by organic substances.—(Ann. de Chim. and Pharm. cxiv. and Am. Journ. Pharm. vol. xxxii.)

Pencils of Tannin for application to the Uterus.—Becquerel recommends the following: Take of Tannin 4 parts. Gum Tragacanth 1 part. Crumb of Bread sufficient to give the required consistence for forming pencils, which are made about one inch long and one fifth of an inch thick.

A New Mode of Preparing some Syrups.—John M. Maisch gives new

processes for Spiced Syrap of Rhubarb and Aromatic Syrap of Blackberry Root.—(Am. Journ. Pharm. vol. xxxi. p. 544.)

"Chloric Ether."—Prof. Procter gives a note on this subject, with allusions to the various preparations sold under this name.—(Am. Journ. Pharm. vol. xxxi. p. 553.)

Syrup of Tar.—Thomas A. Lancaster gives a formula in Am. Journ. Pharm. vol. xxxi. p. 555.

Pills of Iodide of Iron.—A formula by Prof. Procter.—(Am. Journ. Pharm. May, 1860. See also note by Mons. Druique, Journ. Pharm. d'Anvers, in Journ. Md. Col. Ph. Dec. 1859.)

Iodide of Iron Syrap.—W. C. Chapman offers some suggestions in this preparation.—(Am. Journ. Pharm. vol. xxxi. p. 559 ; see also E. Fougere's article, vol. xxxii. p. 22.)

Oil of Juniper a Vehicle for Iodine.—Dr. Keller proposes this form of solution as having certain advantages.—(Translated by J. M. Maisch for Am. Journ. Pharm. vol. xxxi. p. 566.)

Glycerine Ointment for Itch.—M. Bourguignon has published a formula which is transferred from the Gazette Médicale to several Journals and will be found in the Am. Journ. Pharm. vol. xxxi. p. 581.

Dr. Breslau's Indiatan.—B. Festner describes a popular toothache remedy sold in Berlin under this name.—(Am. Drug. Circular, Aug. 1860.)

New Belgian Pharmacopœia—The introduction to the new Edition, from Répertoire de Pharm.—(Amer. Drug. Circ., Aug., 1860.)

Valerianate of Atropia.—U. Collman, in Journ. de Pharm. et de Chimie, gives an improved formula for the preparation of this salt.—(Drug. Circ. Nov. 1859.)

Practical Knowledge.—James W. Mill, of Chicago, contributes a sensible article on the value of knowledge acquired at the counter.—(Am. Journ. Pharm. vol. xxxii. p. 12.)

Liquor Ferri Tersulphatis.—Article by Dr. E. R. Squibb, with formula.—(Ibid.—p. 29.)

Pyrophosphates of Soda and Iron.—Article by Dr. E. R. Squibb. Also formula for a syrup containing these salts.—Ibid. p. 36 and 41. See also, M. Robins' formula.—(From Lon. Pharm. Journ. Am. Journ. Pharm. vol. xxxii. p. 236.)

Preparation of Calamus Root.—Several formulas by J. M. Maisch.—(Am. Journ. Pharm. vol. xxxii. p. 112.)

Notes on Lactucarium and its Preparations.—Essay by Edward Parrish and Wm. C. Bakes.—(Am. Journ. Pharm. (and Am. Drug. Circ. August, 1860,) vol. xxxii. p. 225.)

Note on Citrine Ointment.—B. Festner, Rochester, N. Y., com-

ments on the formula of the Prussian Pharmacopœia, &c., in Am. Druggist' Circular, August, 1860.

Syrup of Lactucarium and other Syrups.—Formulas by Prof. Procter. —(Am. Journ. Pharm. vol. xxxii. p. 218.)

Citrine Ointment with Bear's Oil.—A practical essay by W. Pryor Creecy, of Vicksburg, Miss.—(Am. Journ. Pharm. vol. 32, p. 212.)

A Sophistication.—Under the name of Granular Citrate of Magnesia, an effervescing powder has obtained circulation in England, which, according to the analysis of H. N. Draper, of Dublin, consists of a mixture of bi-carbonate of soda, tartaric acid, sulphate of magnesia, citric acid and oil of lemon. The valuable solution of this citrate has never been introduced into England.

Preparation of Lard.—Mr. T. H. Hills states, in an essay read before the London Pharmaceutical Society, that the odor of lard is derived from a secretion between the lard and its enveloping membrane, he therefore cuts up the "omentum," and, before melting, places it in a vessel with a perforated bottom, and keeps a stream of water running through it, squeezing and stirring continually.

Collection of Taraxacum.—A discussion on this subject in the Pharmaceutical Society, led to the expression of opinion on the part of Prof. Bentley, that February and March were the best months for collecting this root, as then they are more bitter than in the fall. This subject should be further investigated —(See also Lond. Pharm. Journ., May, 1860, and Chem. News, July 21st; Am. Journ. Pharm. vol. xxxii. p. 337.)

Ceratum Cantharides.—Wm. R. Warner, of Philadelphia, gives an elegant process for this preparation.—(Am. Journ. Pharm. vol. xxxii. p. 11.)

Alumen Exsiccatum.—J. M. Maisch, of Philadelphia, gives the result of thorough experiments upon this preparation.—(Am. Journ. Pharm. vol. xxxii. p. 16.)

Glycerole of Aloes.—Recommended as an external application in the treatment of lichen agrius and excoriation from eczema.

Socotrine Aloes, $\mathfrak{z}\text{iv}$.

Pure Glycerine, $\mathfrak{z}\text{iv}$.

Powder the aloes and mix in a mortar with the glycerine, transfer to a bottle and agitate well together; if the aloes is not entirely dissolved, digest for fifteen minutes in a water bath and strain.—(Lond. Pharm. Journ. Dec. 1859.)

Explosion of Hypophosphite of Soda.—Trommsdorff records two violent explosions of this salt during evaporation, once on a sand bath, and a second time on a water bath.—(Archiv. d. Pharm., 1859; Am. Journ. Pharm. vol. xxxii. p. 87, and Chem. News, June 23; see also Chem. News, July 7, 1860, for note by Richard V. Tason.)

Explosion of Oxalate of Peroxide of Mercury.—Peter Hart communicates an instance of this to Chem. News, July 7, 1860.

Extract of Nux Vomica.—J. M. Maisch, in his "Gleanings from German Journals," mentions that if this alcoholic extract has a little water added toward the close of the evaporation, it may be dried and kept in powder without running into a tough mass.

Solubility of Alkaloids, &c., in Chloroform.—A. Schlimpert gives a table of his results, from Archiv. de Pharm.; Am. Journ. Pharm. vol. xxxii. p. 160.

Solubility of Alkaloids in Olive Oil.—See table in Journ. Md. Col. Pharm. Dec. 1859; Am. Journ. Pharm. vol. xxxii. p. 185.

Fluid Extract of Burdock.—A formula for this preparation by Prof. Grahame, in Journ. and Trans. Md. Col. Pharm. and in the Am. Journ. Pharm. vol. xxxii. P. 178.

A new Plaster.—M. Pasquier, of Roubaix, has exhibited to the Academy, leaves of Gutta Percha mixed with peroxide of iron, employed as a dressing of fractures, &c. The leaves are softened by warm water, and moulded to the limb; they do not lose their consistence through the heat of the body.—(Lond. Pharm. Journ.)

Chlorodyne.—Its history, preparation, properties and uses.—(Chemist and Druggist, Feb. 15, also Aug. 15, 1860; see also Am. Journ. Pharm. vol. xxxii. p. 334.)

Respirators.—An essay on the philosophy and construction of these useful instruments, in the Druggist and Chemist, Aug. 15, 1860.

Lead in Citric Acid.—J. Laneau has detected in some English citric acid, a minute quantity of lead, about 0.0207 per ct.—(Journ. de Medic. de Brux. Wittst. v. Lehr. ix.)

Changes of Volume in dissolving Salts.—M. Tessier has determined the contraction that takes place with several salts in the process of solution. A table of his results from Journ de Pharm. et de Chim.; Chemical News, May 12.

Preservation of Ox Gall.—M. Gagnage has found that by adding about three-fourths per cent. of acetic ether to ox gall, the fluid may be preserved from putrefaction.

To improve the taste of Cod Liver and Castor Oils.—One drop of essence of bitter almonds will communicate an agreeable flavor to an ounce of Castor Oil of commerce. Cod Liver Oil shaken up with an equal volume of laurel water, and left for 48 hours before decanting, gives an agreeable taste to the oil, which continues as long as the digestion lasts.

Proportion of Cantharidin in different parts of the Fly.—M. Ferrar, in Répertoire de Pharmacie, gives the results of experiments tending to show that the active principle is distributed over all parts of the body—

a conclusion the reverse of those of M. Farines and M. Combon, previously published, and of Prof. Joseph Leidy, of Philadelphia.

A New Method of Preparing Ferri Pulvis.—This is by the use of oxalate of iron.—(Communicated to the Répertoire de Pharmacie by M. de Giucciardé.)

New Application of Collodion.—A patent has been taken out in England for a new application of collodion, mixed with a fixed oil, to making silks, and other woven fabrics, water-proof.—(Chemical News, Jan. 21, 1860. Am. Journ. Pharm.)

Homœopathic Medicine.—Analysis of 2400 globules for arsenic. Not a particle showed itself by Reinsch's test.—(J. Horsley, in Chemical News, Jan. 11, 1860.)

Antimoniuretted Hydrogen.—Dr. Hannon, Professor at the University of Brussels, has published a note on the preparation and use in medicine of this gas, which is without odor or irritating properties, and can be introduced into the lungs without danger.—(Chemical News, Jan. 28, 1860.)

Adulteration of Powdered Rhubarb.—M. E. Billiot proposes a method of detecting this. From "Science pour Tous."—(Chemical News, Feb. 4, 1860.)

Preparation of Ung. Hydrarg. Nitratis.—A practical article by Julius Schweitzer.—(Lond. Chem. News and Am. Journ. Pharm. May, 1860.)

Quinio.—This name is given to a "rough quinine," used in Brazil, and which is extracted from the fresh Cinchona barks by lime, and then from the lime by alcohol.—(Chem. Centralblatt, and Chem. News, March 3, 1860.)

Syrups of the Phosphates.—Samuel Gale, F. C. S., gives formulæ in the Chemical News, March 17, and London Pharm. Journal, April 2, 1860, for syrups of super-phosphate of iron—of phosphates of iron and manganese—of phosphates of iron, manganese and nickel—of phosphate of iron and lime—of phosphate of iron—and of super-phosphate of zinc. Mr. H. Schweitzer gives a formula for syrup of phosphate of iron, in the London Pharm. Journal, April 2. Mr. Robins a paper on pyro-phosphate of iron in the same journal of the same date.

Urate of Quinia.—Dr. Peraire, of Bordeaux, was led to use this salt from observing cases of intermittent fever which recovered rapidly when the patients partook of their own urine, after they had used quinine ineffectually. This idea is said to be confirmed by experience, and a formula for the preparation is given in the Journ. de Pharm. et de Chimie, copied in Chem. News, March 17, 1860.

Preparation of Mercurial Ointment.—M. de La Rue says that the presence of moisture in lard greatly interferes with the extinguishment of the mercury; he therefore carefully removes this by the application of heat. He mixes the whole of the mercury with one-third of the lard, and then

gradually adds the remainder; two hours' trituration is sufficient.—(Le Monit. Scientif. and Chemical News, March 24.)

Purification of Castor Oil.—M. Perversi, of Turin, recommends treating rancid castor oil as follows: To 1000 parts add 25 of animal charcoal and 10 of calcined magnesia, digest at a temperature of 68° to 78° F., often shaking up for 3 days.—(Chemical News, March 24, 1860.)

Composition of Hydrargyrum Cum Creta.—This subject, so much discussed in this country during a previous year, is treated of by Prof. Redwood.—(Pharm. Journ., April 2, 1860.)

Honey as a vehicle for external remedies.—Essay read by Dr. Murray Thomson, at a pharmaceutical meeting in Edinburgh.—(Ibid.)

Plasters of Opium and Belladonna.—Suggestions of Mr. A. F. Hasselden, with new formulæ.—(Lond. Pharm. Journ., May, 1860.)

Experiments on Oil of Peppermint.—C. Bullock, in Am. Journ. Pharm., vol. xxxi, p. 552, and J. M. Maisch, in vol. xxxii, 105, have detailed their examination of an interesting specimen of adulterated oil of peppermint.

Dry Crystals of Valer. Ammon.—B. J. Crew gives an excellent process for this difficult preparation.—(Am. Journ. Pharm., vol. xxxii. p. 109.)

Liquor Opii Compositus.—A new preparation of Dr. E. R. Squibb, for which an elaborate formula is published in the Am. Journ. Pharm., vol. xxxii. p. 120.

Chalybeate Cod Liver Oil.—Dr. Jennel, in the Répertoire de Pharmacie, gives the following formula:

Take of Brown Cod Liver Oil, a gallon.
Distilled Water, of each 8 ounces.
Carb. Soda, cryst., 3½ drachms.
Sulphate of Iron, 3 drachms, 2 scruples.

The sulphate of iron and carb. soda are dissolved separately in distilled water; the solutions are then mixed and added immediately to the oil; the mixture is kept in a wide-mouth bottle, exposed to the air and repeatedly shaken for eight days, after which the oil is separated from the solution of sulphate of soda and filtered. This contains about 1 per cent. of sesqui-oxide of iron. It requires to be kept without exposure to the air, as it soon becomes rancid and even resinifies.—(Chem News, June 30, 1860.)

Antidote to the smell of Musk.—In the "Curiosities of Science," by John Timbs, it is stated that emulsion of bitter almonds possesses the power of neutralizing the smell of musk, and that according to Mr. Merlot, a druggist in Normandy, ergot of rye will produce the same effect.

Pea-Nut Oil.—Jonas Winter reports some experiments upon the use of the oil of *Arachis hypogæa*, in pharmacy.—(Am. Journ. Pharm., vol. xxxii., p. 292.)

Bower's Glycerin.—Note on this superior article of American manufacture, by T. S. Wiegand.—(Ibid, p. 308.)

Liquor Ferri Peracetatis.—Notice of this new preparation of iron with formula by Prof. Procter.—(Ibid, p. 309.)

Species St. Germain.—A formula for this popular cathartic, from the Prussian Pharmacopœia.—(Am. Journ. Pharm. Ibid, p. 312.)

Plastic Charcoal for Water Filters.—G. Leube has analyzed this article, and come to the conclusion that it consists of bone charcoal, treated with crude muriatic acid, afterwards formed into balls with water and dried slowly.—(Wittst. V. Lehr. ix.)

The behaviour of Drugs to Alcohol and Water.—Dr. F. Daubrawa, pharmacist, has made a large number of experiments on this subject; the cold infusion, the hot infusion, the decoction and the tincture prepared with alcohol of .8414 were examined; from the specific gravity he calculated the amount of dry extract. The aqueous liquids were mixed with two volumes of alcohol of .833, and the alcoholic tincture with two volumes of distilled water; from the specific gravity of the filtrate the amount of dry extract was again calculated. *For aqueous tinctures, fluid extracts and syrups*, which are liable to become mouldy, he suggests to mix them with two volumes of strong alcohol, and after filtering, to distil off the alcohol by means of a water bath. These preparations keep remarkably well.—(Oester. Zeitschr. f. Ph., Wittst. V. Lehr. ix.)

Syrup of Iodohydrargyrate of Iodide of Iron.—M. Chamoun suggests the union of iodide of iron and biniodide of mercury in the forms of syrup and pill, thus:

Take of Biniodide of Mercury, 1 grain,

Syrup of Iodide of Iron, 3000 grains.

Triturate the biniodide with the syrup until dissolved, and incorporate with the remainder. There appears to be a combination between the two iodides.—(Répert. d. Pharm., May, 1860.)

Decoloration of Syrup of Sesqui-Chloride of Iron.—M. Duroy, in the Journal de Pharm., for May, states that a syrup made by mixing 10 parts of solution of sesqui-chloride of iron of 30° B., with 490 of simple syrup, gradually becomes decolorized, the iron salt is reduced to a protochloride, and grape sugar is formed.

Assay of the Distilled Waters.—A method of testing the aromatic waters by the use of a weak solution of iodine.—(Am. Journ. Pharm., vol. xxxii. p. 319.)

Fluid Extract of Leptandra.—From Tilden's Journal of Materia Medica, April, 1860, published in Am. Journ. Pharm., vol. xxxii. p. 326.

Fluid Extract of Polytrichum Juniperinum.—Gustavus Dohme contributes a formula to Journ. & Trans. Md. Col. Pharm., June, 1860.

Glycerole of Kino.—Dr. W. S. Love suggests this preparation made in the proportion of 2 drachms to the fluid ounce, as a substitute for the tincture in cretaceous mixtures, it appears to be a permanent preparation.

Mixtures of Gum Resins.—The addition of a few drops of oil of almonds facilitates the trituration of ammonia, assafoetida, &c., with water.—(Schweif. Z. f. P. v.)

Gelatinous Acetate of Lime.—A solution of acetate of lime, when mixed with strong alcohol in certain proportions, gelatinizes according to A. Vogel, jun. and separates crystals on standing, the mass becoming liquid again.—(Büchner's N. Répert. ix.)

Improving the taste of Copaiva.—The addition of a little carbonate of magnesia or lime, according to Landerer, deprives old and resinified copaiva of much of its acrid taste, and on taking afterwards a cup of well sweetened coffee, scarcely any taste is left behind.—(Büchner's N. Répert. viii.)

On oxidation through fixed oil.—Dr. A. Vogel and C. Reischauer have established by direct experiments, that a layer of oil does not protect the substances beneath from oxidation, when in contact with the atmosphere.—(Büchner's N. Répert. viii.)

Granulär of Citrate of Magnesia.—Draper mixes in the waterbath, excluding the aqueous vapors, 72 p. crystallized sulphate of magnesia, 20 p. citric acid, 300 p. tartaric acid, 300 p. bicarbonate of soda.—(Jour. de Ph. and de Chim. xxxvii. Schw. Z. f. Ph. v.)

Improvement of filtering paper.—Filtering paper which is too close in texture is much improved by moistening it with water, allowing it to freeze, and subsequently to dry again, without heat, in a cool and airy place.—(A. Andreæ, Schweiz. Z. f. Ph. v.)

Yield of Benzoic Acid by Sublimation.—A. Frickinger has found that by repeated careful sublimation, 24 oz. benzoin yield 23½ drachms pure crystallized benzoic acid by boiling with lime, &c., and 20½ drachms by sublimation, difference 1 5.6th per ct.; 2 drachms more of a very empyreumatic acid could be obtained by exhausting with lime.—(Büchner's N. Rép. ix.)

Mercurial Ointment.—To facilitate the extinction of mercury, G. Rauch proposes the addition of 1 drachm of burnt sugar to 12 oz. mercury and the gradual addition of the fat.—(Schweiz. Z. f. Ph. v.)

Investigations concerning the purity of Essential Oils.—M. Cazæ contributes to the Jour. de Med. de Toulouse, recherches on the reaction of essential oils, translated for Jour. Md. Col. Pharm. Dec. 1859.

Syrup and Fluid Extract of Ipecacuanha.—Prof. Grahame gives formulas in Jour. Md. Col. Pharm. Dec. 1859.

Brown Mixture.—Chas. S. Tilyard contributes a new formula.—(Ibid.)

Detection of Salicine, when used as an adulteration of sulphate of quinine, from Jour. de Pharm. et de Chim. Jour. Md. Col. Pharm. Dec. 1859.

Reform in Weights and Measures.—Essays by Edward Parrish, Feb. and March, 1860; by A. B. Taylor, Am. Jour. Pharm. vol. xxxii. p. 97; and by Dr. E. R. Squibb, *ibid.* p. 29.

Fluid Extract and Syrup of Chamomile.—Formulas for these preparations from Tilden's Jour. Mat. Med. in Drug. Circular, May 1860.

Fluid Extract of Pipsissewa.—Process proposed by Samuel Fairbank.—(Jour. Md. Col. Pharm., March, 1860.)

Vegetable oils and fats.—An account of numerous sources, modes of preparation, &c.—(Drug. Circular, March, 1860.)

Tables showing the per centage of Morphia, and the loss by drying, of Opium, from paper by Dr. Squibb in Am. Jour. Pharm.—(Druggists' Circular, May, 1860.)

Liebig's Extract of Meat.—The formula for this preparation will be found in the Drug. Circ., May, 1860.

Linseed Oils.—Article from the "Scientific American."—(*Ibid.*)

Emulsion of Coal Tur.—This preparation designed as a disinfectant is prepared by agitating saturated tincture of quillaya, 2400 parts, with 1000 parts of coal tar, decanting, filtering and mixing with 4 parts of water to one of the tincture; this is a convenient emulsion for injecting into ulcers, &c.

Glycerine in the Arts.—As a solvent for gum and albumen, glycerine is found very useful, the solution being permanent in summer.

Improved Formula for Arom. Syr. Rhubarb.—W. S. Thompson contributes to Jour. Md. Col. Pharm.—(See Am. Jour. Pharm. vol. xxxii. p. 329.)

Preparations of Taraxacum.—Essay by Thos. B. Groves, in London Pharm. Journal, May 1860, transferred to Am. Jour. Pharm. vol. xxxii. p. 340.

Fluid Extract of Wild Cherry.—Prof. Procter gives some observations on the details of this preparation.—(Am. Jour. Pharm. vol. xxxii. p. 399.)

Tartro-Citric Lemonade.—In an article in the Am. Jour. of Pharm. vol. xxxii. p. 408, Prof. J. Lawrence Smith calls attention to this solution as in his opinion superior to citrate of magnesia.

Hypophosphite of Quinia.—Prof. J. Lawrence Smith now gives a statement of the composition of this preparation.—(Am. Jour. Pharm. vol. xxvii. p. 410.)

Red Precipitate Ointment.—F. A. Keffer communicates the following formula which he states produces an ointment far from the tendency to rancidity so observable in the officinal.

R. Olei Ricini, ℥iiss.

Ceræ Albæ, ℥ss.

Hydr. Oxid. Rub., ℥ss.

Melt the wax and oil with a gentle heat, and when cool rub in the red precipitate previously reduced to fine powder.—(Am. Jour. Pharm. vol. xxxii. p. 412.)

The Drop and Minim Measure.—The question, What is meant by "gtt"? is discussed by Bernard S. Proctor in the London Pharm. Journ. July 2d.—(Am. Journ. Pharm. vol. xxxii. p. 428.)

Detection of the Adulteration of Chinese Rhubarb by means of Essential Oils.—Emile Rillot publishes some experiments in Journal de Chimie Médicale.—(Am. Journ. Pharm. vol. xxxii. p. 435.)

Preparation of Lactic Acid.—Lautemann alters Bensch's process by using sugar, tartaric acid, milk and cheese with one third more water, and instead of chalk, ordinary zinc white.—(See Am. Journ. Pharm. vol. xxxii. p. 448.)

Weight of Drops.—F. A. Flückiger in experimenting on this subject. Dropping from a tube with an opening of .75 mm. diameter, with the temperature not influenced by the hand, and the pressure of the liquid = 0, he obtained at a temperature, varying between 4° and 10° C., as a medium the weight of 4.986 grammes for 100 drops of water, at 18° C., 4.111 grm.; for croton oil 1.3965 grm. at 16° C.; for solution of acetate of lead (1 p. to 5 p. of water) 3.7049 grms. at 16.5° C.; for mucilage of gum arabic (1 p. to 2 p. water) 2.9899 grms. at 17° C.; for 1 gum to 3 water 3.690 grm. at 17° (Schw. z. f. Ph. v.)

Extract of Rhatany, if rubbed into a very fine power, then triturated with very little water and finally with 20 or 25 drops of alcohol is readily dissolved in aqueous mixtures.—(Schweiz. Z. f. Ph. v.)

Iodine in Ointments.—Iodine may be dissolved in a little chloroform and triturated with the lard; the excess of chloroform readily evaporates, and the ointment contains the iodine uniformly mixed.—(Schweiz. Z. f. Ph. v.)

Chloride of Gold, and Auro-chloride of Sodium, when prescribed in ointments with acetate of morphia, ought first to be rubbed up with a few drops of oil of almonds, to avoid decomposition between the two salts.—(Schweiz. Z. f. Ph. v.)

Valerianic Acid.—Extract from Inaugural Essay, by Louis Dohme.—(Journ. Md. Col. Pharm. June, 1860.)

Tannate of Bismuth.—M. Cap has introduced this remedy in the treatment of obstinate diarrhoea.—(Chem. News, Am. Journ. Pharm. vol. xxxii. page 246.)

Infusions.—Wm. S. Thompson, of Baltimore, comments on the process for preserving infusions proposed by Mr. Stevens, of London, and published in the Lond. Pharm. Journ. May, 1859, Journ. Md. Col. Pharm. Dec. 1859; see also, J. Faris Moore, on infusions.—(Ibid.)

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Preparation and use of Iodide of Sodium.—T. E. Jenkins, pharmacist publishes in Louisville Med. News, a formula for this preparation, description of its properties, &c.—(Journ. Md. Col. Pharm. Dec. 1859.)

Oxalate of Cerium.—Remarks on the source and preparation of this remedy by Ferd. F. Mayer of New York.—(Am. Journ. Pharm. vol. xxxii. p. 1.; see also remarks on the oxides and sulphates of Cerium, in Lond. Chem. News, Feb. 18, 1860.)

Purification of Sulphuric Acid from Arsenic.—The statement that arsenic might be readily eliminated from sulphuric acid by distilling with chlorides, is combatted by C. Frederking of Riga.—(Archiv. der Pharm. and Am. Journ. Pharm. vol. xxxii. p. 88.)

Pyrophosphates of Soda and Iron.—Dr. Squibb offers formulas for these preparations, and the syrup prepared from them, with comments, in the Am. Journ. Pharm. vol. xxxii. p. 36 to 41.

Solution of Oxide of Copper in Ammonia.—Schweizer's solution, which has the property of dissolving cellulose, without decomposition.—(Compiled for Am. Journ. Pharm. vol. xxxii. p. 43.)

Preparation of Bromide and Iodide of Potassium.—Dr. A. Büchner's new process for the new Bavarian Pharmacopœia.—(Ibid.)

Nickel.—M. Charles Tessier has communicated to the Paris Academy, a note upon some peculiar properties of Nickel.—(Comptes Rendus. Am. Journ. Pharm.)

Osmium, Ruthenium, Palladium and Iridium.—MM. Deville and Debray's elaborate article from Annales de Chimie et de Physique, is abridged in Lond. Chem. News, Jan. 28, 1860.

Chrome Green.—A new process for preparing oxide of chromium, for coloring purposes.—(M. Guignet from Le Cosmos, Chemical News, Jan. 28, 1860.)

Extracting Silver from its Ores.—The American Mining Magazine, gives a description of the processes.—(Chemical News, Feb. 4, 1860.)

Chemical Polarization of Oxygen.—Prof. Schönbein on this novel and interesting subject, the production of + oxygen and — oxygen, &c., is transferred to the Lond. Chem. News, Feb. 11, 1860.

Arts and Manufactures of Japan.—An interesting article by Dr. MacGowan, read before the Society of Arts.—(Chem. News, Feb. 1860.)

Mineral Treasures of the Andes.—An elaborate essay on this subject read by Frederick Field, Esq., at the Royal Institution of Great Britain, is published in the Chemical News, Feb. 25, 1860.

Preparation of Anhydrous Sulphuric Acid.—By M. Osann; translated for Lond. Chem. Gaz.—(See Am. Journ. Pharm. vol. xxxi. p. 439.)

Detection and estimation of Phosphorus and Phosphorous Acid. By

Prof. Scherer.—(Annalen der Chem. und Pharm. cxii. 214, translated by J. M. Maisch, for Am. Pharm. Journ. vol. xxxii.)

The equivalent weight of Manganium and Nickel.—The latest researches condensed in Pogg. Ann. cvii.; An. Chem. und Pharm. cxiii.—(Ibid.)

Behaviour of Sesquisalts of Iron to Sulphurous and Hyposulphurous Acids.—Investigations by Hugo Schiff.—(Ann. der Chem. und Ph. cxi. 366. Ibid.)

Reaction of Biniiodide Mercury, precipitated from alcoholic solution. H. Schiff's observations.—(Ann. der Chem. und Ph. cxi. 371.)

Estimation of Magnesia and the fixed alkalis.—Prof. Th. Scherer proposes a new process.—(Ann. der Chem. und Ph. cxii. 177.)

Decomposition of Carbonic Acid by red hot Copper.—Lautemann confirms the observation that pure copper does not produce this decomposition, which he attributes to impurities.—(Ibid.)

Platinum.—Analysis and assay of the ores, cupellation, metallurgy and extraction of the metal treated of in the Lond. Pharm. Journ. March, 1860.—(Chem. News, Dec. 17, 1859.)

Oxidation of Hydrochloric Acid.—Dr. Odling gave the results of experiments at a meeting of the Society, reported in the Lond. Pharm. Journ. March, 1860.

Water Glass.—Dr. Johan A. Fuchs has submitted to the Society of Arts an elaborate essay on several varieties of this solution, their properties, uses, &c.—(Lond. Pharm. Journ. March, 1860.)

Effects of Mercury on the laborers in the Quicksilver Works of Idria.—Dr. Gorbez, of Idria, communicates to the Dublin Quarterly Journal of Med. Science, the symptoms and treatment of the mercurial diseases under his observation.—(Lond. Pharm. Journ., March, 1860.)

Definite Compounds of Sesquioxides and Sesquichlorides.—M. Bechamp has published results of experiments on the extent of the known solvent action of sesquichlorides on sesquioxides, and the nature and composition of the bodies formed.—(Lond. Pharm. Journ. Oct. 1859.)

Chromium—Mr. F. Wöhler has shown that this metal may be readily obtained from the violet chloride of chromium with zinc.—(Lond. Pharm. Journ., Nov. 1859.)

Hydrates of Baryta and Strontia.—The composition of these crystalline hydrates has been investigated by Prof. Bloxam.

Perchloride of Iron as a Disinfectant.—Drs. Hoffmann and Frankland, to whom the subject of the deodorization of sewage was referred by the Board of Works in London, give a decided preference to perchloride of iron in solution.—(Lond. Pharm. Journ. Dec. 1859.)

The freezing point of water in capillary tubes.—H. C. Sorby has inves-

tigated this subject, finding that in some extremely fine tubes, water does not freeze at 3° F. and that there is 20° difference between its freezing point in tubes of $\frac{1}{4}$ th inch and those of less than 1-200th inch in diameter.—(Lond. Ed. and Dqb. Phil. Mag.)

Tungsten.—This hitherto unprofitable metal which has been thrown into heaps as worthless, at the tin mines in Bohemia, for nearly 500 years, has recently been combined with iron to form a very cheap and superior steel, used in cutlery, &c.—(Dingler's Polytechnisches Journal.)

Saline Substances as Preventives of Inflammability.—Several papers have appeared in the Journals on this subject.—(See Lond. Pharm. Journ. Jan. 1860, p. 359 and 385.)

Monrels Persulphate of Iron.—Prof. Procter comments on this new remedy and its formula.—(Am. Journ. Pharm. vol. xxxi. p. 403, and Geo. S. Dickey, Jr., of San Francisco, Cal., gives a formula in the same Journal, vol. xxxii. p. 10, and Dr. E. R. Squibb in the same number, p. 29.)

Liquor Ferri Iodidi.—An anonymous writer in the Am. Journ. Pharm. vol. xxxi. p. 409, gives a formula. E. Fougere, of New York, treats at large of the same subject in the Journ. vol. xxxii. p. 22, upon which the editor comments.

The Solubility of Phosphate of Iron.—J. M. Maisch calls attention to the fact that the ordinary phosphate of iron may be dissolved by the acid of citrate of ammonia forming a permanent solution as was known to be the case with the pyrophosphate.

Preparation of Phosphide of Calcium.—Geo. W. Andrews proposes an easy and convenient method.—(Journ. and Trans. Md. Col. Pharm. vol. i. p. 134.)

Carbon as a Means of Permanent Record.—John Spiller contributes to the Chemical News, the following formula for a writing fluid recommended as unaffected by acids and alkali, though not so readily applied as ordinary ink. Take of concentrated sulphuric acid deeply colored with indigo, 1 fluid ounce; water, 6 fluid ounces; loaf sugar, 1 ounce troy; strong mucilage of gum arabic, 2 to 3 fluid ounces. Writing traced with a gold pen or quill dipped in this liquid dries a pale blue color, but if now a hot iron be passed over its surface, or if the page is held near the fire, the writing will quickly assume a jet black color from the carbonization of the sugar by the warm acid.

Aluminium Leaf.—M. De Egousse, in the Répertoire de Chimie, describes this product as made by the same process as gold and silver leaf. It may be substituted for silver in ornamentation, though less brilliant; it is highly combustible.—(Chem. News, Dec. 10, 1859. See also Chem. News, June 2, 1860.)

Aluminium.—Aluminium leaf oxidizes spontaneously, aluminium wire

is very brittle, but sheet aluminium may be employed for various purposes without oxidizing or breaking. Bibra's experiments.—(Ann. d. Chem. und Pharm. cxiv.)

Plumbago in Ferri Pulvis.—This adulteration, which is sometimes to the extent of 14 per cent. may be detected by treating the powder successively with weak sulphuric and nitro-muriatic acid, which will dissolve the iron and leave the carbon as a residue.—(L'Ab. Medicale, No. 33, and Am. Journ. Pharm.)

Oxides of Iron as means of Conveying Oxygen.—By F. Kuhlmann, in Comptes Rendus, translated for Chemical News, Dec. 17, 1860, and Am. Journ. Pharm.

Purification by Oxide of Iron.—The Chemical News for Dec. 31, has some further allusions to this practical operation.

Decomposition of Sulphate of Zinc.—M. Persoz proposes to utilize the large quantities of sulphate of zinc produced in galvanic piles, by decomposing with chloride of calcium to produce chloride of zinc.—(Chemical News, Jan. 7 1860.)

The Numerical Relations of Equivalent Numbers.—Article by M. Carey Lea, in Silliman's Journal, Jan. 1860, and Abridgement in Chemical News, March 17th, July 14th.—(See, also, J. J. Coleman's Essay, Chem. News, July 21st and 28th.)

American Pot and Pearl Ashes.—An analysis of six samples, by Ferd. F. Mayer.—(Am. Jour. Pharm., vol. xxxii., p. 132.)

Spontaneous Decomposition of Chloride of Lime.—Dr. Hofman has published an interesting statement in regard to a large bottle of this substance which, after remaining in his laboratory for about seven years, exploded with great violence.

Manganic Acid.—Dr. M. T. L. Phipson has communicated to the French Academy a paper on Manganic Acid, showing its identity with the so-called permanganic acid.—(Translated from Comptes Rendus, Am. Jour. Pharm., vol. xxxii., p. 320, and Scientific American.)

Ozone produced by the Combustion of Ether.—Prof. Schönbein contributes an article on what he calls the Chemical Polarization of neutral Oxygen during the slow combustion of Ether.—(Jour. für Prakt. Chem., and Chemical News, May 5th, 1860)

Bibasic Sulphate of Copper.—M. Rouher describes this salt, its mode of preparation, and properties.—(Comptes Rendus. Ibid.)

Conversion of Cadmium into Oxide by a mixture of Nitric and Hydrochloric Acids.—A note by Thomas Salter.—(Chem. News, May 12.)

Sulphates of Potash and Soda.—A new process published in Comptes Rendus, by M. Marguerite.—(Chem. News, May 12.)

Polarization.—Dr. J. H. Gladstone, in a discourse before the London Chemical Society, gives extensive details in regard to circular polariza-

tion of light, and the influence upon it of state of aggregation, temperature, solution, chemical combination, crystalline form, &c., pointing out the uses of this phenomenon in chemical research.—(See Chem. News, May 12th.)

Soluble Silicate of Lime and Soda.—M. Bolley describes a new double salt made by adding silicate of soda to lime-water. It is soluble, amorphous, transparent and fusible.

Natural Borate of Lime.—This impure salt, as imported from Chili, may be substituted for borax in glazing.—(Chem. News, May 19th.)

Silver amalgam, according to J. Gulielmo, is readily prepared by dissolving nitrate of silver in 2 or 3 p. water, and adding 4 p. mercury; all the silver is precipitated and unites with the excess of mercury. This method may probably answer for the estimation of silver.—(Wittst. v. Schr., ix.)

Reaction of Molybdic Acid.—Prof. Wittstein observed that molybdic acid imparts to curcuma paper a brown orange color.—(Wittstein, v. Schr. ix.)

Isomerism of binoxide of Tin.—The two modifications of oxide of tin, which are soluble and insoluble in acids, are permanently precipitated by ammonia. Wittstein observed that a solution of bichloride of tin, after being kept for several months, yields a precipitate with ammonia, soluble in an excess.—(Witts. v. Lehr. ix.)

Potassa not precipitated by Tartaric Acid.—Wittstein draws attention to the fact that a mixture of potassa-alum with boracic acid, after the removal of alumina, is not precipitated by tartaric acid until after the previous supersaturation with soda.—(Witts., v. Schr., ix.)

Boracic Acid in California.—John A. Veatch informs the California Academy of Natural Sciences, that he finds this product in the sea water on the coast, in certain springs, &c.—(Pacific Medical and Surgical Journal, April, 1860, and Am. Jour. Pharm., vol. xxxii., p. 330.)

Weighing of Moist Precipitates.—Ferd. F. Mayer, of New York, publishes in the American Journal of Science and Arts, observations and rules for volumetric analysis.—(See also Am. Jour. Pharm., vol. xxxii., p. 336.)

Impurities of Commercial Zinc, by C. W. Elliott and F. H. Storer, a valuable paper read before the American Academy of Arts and Sciences, May 29th.—(See abstract in Am. Jour. Pharm., vol. xxxii., p. 402.)

A New Metallic Element.—Von Kobel announces that he has discovered in certain minerals a new metal, to which he has given the name of *Dianium* (Di.).—(Bull. der Acad. der Wissenschaften. Silliman's Jour. and Am. Jour. Pharm., vol. xxxii., p. 425.)

Water as fuel and illuminating Material.—An article upon the important processes for decomposing water, &c.—(American Druggists' Circular, Jan., 1860.)

History of the Discovery and Manufacture of Phosphorus.—Extracted from Fleck's Handbook.—(Druggists' Circular, Feb., 1860.)

Table of Simple Qualitative Analysis.—Prepared with reference to the uses of the Apothecary, by Ferd. F. Mayer.—(Druggists' Circular, Dec., 1859.)

Preparation of pure Hydro-Fluoric Acid.—Process of H. Briegleb.—(From Liebig's Annalen. Ibid.)

Tartrate of Bismuth.—Dr. A. Vogel, Jr. and Dr. Reischauer have experimented on this salt.—(Büchner's Répert. and Am. Jour. Pharm.)

Crystallized Carbonate of Magnesia.— $\text{MgO}, \text{CO}_2 + 3\text{H}_2\text{O}$, is prepared by dissolving 3 p. cryst. sulphate of magnesia in 10 p. water, and mixing it with 2 p. pure bicarbonate of soda. The mixture is gradually heated to 40°C . and then set aside in a temperature between 10 and 20°C .—(Ph. Cent. Halle, Schweiz. Zeitschr. f. Ph. v.)

Reduction of Peroxide of Iron.—F. A. Flückiger found that a solution of persalt of iron is not deoxidized either in the cold or on short boiling, with acetic, oxalic, benzoic, citric, tartaric, arsenious acid, urea, caffeina, quinia, cinchonia, atropia, digitalin, veratria, codeia, strychnia, salicin, santonin, oil of bitter almonds, chloroform, arrowroot, wheat-starch paste, gum, milk-sugar, cotton, tincture of litmus. The deoxidation is effected on boiling, not in cold, by phloridzin, grape-sugar, cane-sugar, pepsin. It is produced instantly in the cold by gallic acid, the tannins from oak, kino, catechu, rhatany; by catechin ether, iodide of potassium, molasses from cane sugar, solution of indigo, morphia and its salts, opium and its tinctures, and tincture of guaiacum.—(Schweiz. Z. f. Ph. v.)

Reaction between oxide of copper and protein compounds.—Dr. A. Vogel and C. Reischauer observed that protein compounds and glutinous substances immersed in a solution of a fixed alkali or baryta, are dissolved on the addition of a copper salt. The solution has a blue, violet, or carmin-red color as the protein increases, but reassumes the blue color on the absorption of carbonic acid; ammonia produces only the well-known blue color, with a tint of violet.—(Büchn. N. Répert., viii.)

Volatility of Anhydrous Phosphoric Acid.—Lautemann asserts that it is more volatile than has been supposed, and may be sublimed in a glass tube over a spirit lamp.—(Annal. der Chem. und Pharm., and Chem. News, May 19.)

Carbonate of Lead from Coffins.—R. V. Tuson has submitted portions of a very old leaden coffin to analysis, and finds them to consist of carbonate of lead.—(Phil. Mag. and Chem. News, May 19.)

Apparent perturbations of combining proportions.—Josiah P. Cooke, jr., publishes in the Am. Journ. of Science and Art, xvii. p. 234, a paper upon certain compounds of zinc and antimony, in which there is an ap-

parent departure from the law of definite proportions.—(Also, Chem. News, May 26, June 2, July 14.)

Nitric Acid in Natural Binoxide of Manganese.—MM. Deville and Debray find nitrates in this mineral, and attempt to account for its presence. M. Boussingault has noticed the same fact, but does not adopt the explanation.—(Comptes Rendus, and Chem. News, May, 1860.)

To Prepare Sulphate of Manganese free from Iron.—H. Delffs proposes passing sulphurous acid into peroxide of manganese and water, and calcining the hyposulphate thus formed.—(Polytech. Notiz. & Chem. News, May 26.)

Manufacture of Sulphuric Acid.—"An old alkali manufacturer" gives some practical remarks in the Chemical News, June 30.

Action of Prolonged Heat and Water on different substances.—Mr. H. C. Sorby, in Comptes Rendus, gives some observations.—(Chem. News, June 30.)

Rotten Stone.—An instructive article on this subject appears in the Chemical News, June 30.

Titaniferous Iron Ores of Canada.—T. Sterry Hunt gives a paper in Chem. News, July 7.

Preparation of Iodic Acid.—Kammerer gives a process by the aid of iodide of baryta and chlorine water.—(Chem. News, July 7.)

Bromide and Iodide of Potassium.—The processes proposed by Prof. Büchner, for the new edition of the Bavarian Pharmacopœia.—(Ibid.)

Behaviour of Sesqui-Salts of Iron to Sulphurous and Hyposulphurous Acids.—Schiff's observations condensed by J. M. Maisch.—(Am. Journ. Pharm., vol. xxxii. p. 442.)

Preparation of Platinum Black.—C. Bruner, sen., recommends to agitate iron reduced by hydrogen with a solution of bichloride of platinum, and dissolve the excess of iron from the precipitate by boiling with concentrated nitric acid.—(Dingler's Polytechn. Journ., U. L. Büchner's N. Rep. viii.)

Polishing of Platinum Crucibles.—Prof. Pettenkofer recommends for this purpose Swedish sea-sand as very effectual.—(Büchner's N. Répert. ix.)

Reduction of Metallic Silver.—W. Lienau dissolves chloride of silver in ammonia and suspends polished sheet-copper in the solution until it becomes bright again.—(Ph. Cent. Halle,) Maisch fuses the chloride of silver with a mixture of 8 p. dry carbonate of soda, 1 of charcoal and 1 of borax.—(Schweiz. z. f. Ph., v.)

The Purification of Muriatic Acid from chlorine and sulphurous acid, according to Domonte, is effected by a current of carbonic acid gas.—(Polytechn. Not. Schw. Z. f. Ph. v.)

Analysis of Commercial Phosphoric Acid.—Contributed to Am. Journ. Pharm., vol. xxxii. p. 193, by John M. Maisch.

Preparation of Carbonate of Magnesia in England.—Magnesite, which is free from iron, is dissolved in carbonic acid water and the solution boiled; the carbonic acid is obtained from burning coal or from lime-kilns.—(Pharm. Centralhalle. Schweiz. Zeitschr. f. Ph., 1860.)

Reduction of Silver and Mercurial Salts.—According to Beketoff, nitrate and acetate of silver are reduced to metallic silver in the presence of zinc and sulphuric acid with the light excluded; other silver salts and proto-nitrate of mercury only under a higher pressure.—(Erdmann's Journ., lxxviii. Schw. Zeitschr., v.)

Nickel.—A note on some peculiar properties of this metal, by M. Charles Tissier, from Comptes Rendus.—(Am. Journ. Pharm., vol. xxxii. p. 234.)

Analysis of Crab Orchard Salts.—From Louisville Medical News, February, 1860.—(Am. Journ. Pharm., vol. xxxii. p. 239.)

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Vegetable Coloring Matters.—M. Filhol has published some new researches.—(Comptes Rendus, Chem. News, July 14.)

Chemical Reactions of Brucia.—Notes by T. G. Wormsley, M. D.—(Chem. News, July 21.)

Preparation of Benzine, Nitro-Benzine and Aniline.—M. Parisel in the Monit. des Sci. Med. et Pharm.—(Abridged in Chem. News, July 28. See also *ibid.*)

Alkaloid of the Coca.—The leaves of Erythroxylon coca contain, according to Niemann, an organic base to which the name of *Cocain* is given.—(Archiv. der Pharm. Chem. News, July 28. Am. Drug. Circular, August, 1860.)

Enanthic Acid.—M. Fisher announces his belief that this body, as before discovered, is only a mixture of capric and caprylic acids.—(Comptes Rendus. Chem. News, July 28.)

Ericinon.—W. Uloth obtained by dry distillation from the aqueous extracts of *Vaccinium myrtillus*, and various Ericaceæ, a liquid, which yields a neutral crystalline body, ericinon, by treating with sugar of lead, decomposing the precipitate with sulphuretted hydrogen, evaporating and subliming.—(Ann. d. Chem. und Pharm., xi. Wittst. V. Lehr. ix.)

Arnicin.—According to Pavesi, the *arnicina* of Bastick does not exist, but the active principle is an acid resin, bitter, acrid, insoluble in water, little soluble in alcohol and ether, and soluble in alkalies.—(Journ. de Medic. de Brux. Wittst. V. Lehr. ix. See also note by Pavesi, from L'Union Medicale, translated for the Journ. Md. Col. Ph., December, 1859.)

Solubility of Paraffin.—Paraffin fusing at 58.25°C. , and congealing at 54.50° , was found by E. Spiess to dissolve in 3358 parts of cold, and 137.4 p. boiling alcohol, in 78 p. cold and 9 p. boiling ether, in 33.5 p. cold oil of turpentine, and in 167.25 cold olive oil.—(Wittst. V. Lehr. ix.)

Sugar in Sulphate of Quinia.—J. B. Batka asserts that all commercial sulphate of quinia contains sugar resulting from the action of sulphuric acid upon the cellulose.—(Wittst. V. Lehr. ix.)

New test for cellulose.—J. B. Batka, on experimenting with Grahe's test for cinchona barks, observed that the pure alkaloids yield the same reaction with any other bark, with sawdust, paper, and with the carbohydrates, starch, dextrine, gum, sugar. No salt of the alkaloids will produce the carmine red sublimate, and much less of it with cellulose, from which it appears as if the alkaloids were present in the barks in an uncombined state.—(Chem. Centralblatt. Wittst. V. Lehr. ix.)

Specific Gravities of Diamond, Graphite and Charcoal.—The interesting relations between these forms of carbon considered with reference to their atomic weight and specific gravities—are described by Dr. Lyon Playfair, in an essay read before the Royal Society of Edinburgh.—(Chem. News, June 9.)

The Glucosic Fermentation of Cane Sugar.—M. Bertholet has been investigating this subject, the philosophy of yeast action, &c.—(Comptes Rendus and Chem. Gazette, June 16.)

Observations on Fermentation, by M. Pasteur.—(From Annal. de Chimie et de Phys. abridged in Chem. News, July 7.)

Artificial Formation of Ammonia.—A suggestive article in the Chem. News of June 23.

Organo-Metallic Bodies—Discourse delivered before the London Chemical Society by Dr. Frankland.—(Chem. News, June 30.)

Indigo Test for Glucose.—Mulder gives a process for the detection of small quantities of grape sugar and glucose.—(Chem. News, June 30.)

Estimation of Sugar in Urine.—Bruke points out some new facts and confirms his former assertion that healthy urine always contains traces of sugar.—(Chem. News, June 30.)

Chemical Composition of Arbutus Fruit.—M. Filhol writes the results of his investigations.—(Comptes Rendus. Chem. News, July 7.)

Crystals in the Bark of Guaiacum.—Dr. Otto Berg and others have made observations upon the twin crystals of gypsum found in this bark.—(Archiv. der Pharm. and Chem. News, July 7.)

Chemistry of Pepsine.—A resumé on this subject by Harry Napier Draper, from Dublin Medical Press.—(Chem. News, July 14.)

Relations between Amyloid and Albumenoid matters.—Mr. Sterry Hunt writes on this subject to the Academy of Sciences.—(Comptes Rendus. Chem. News, July 14.)

Oxide of Ethylene.—Wurtz continues his researches on this body.—(Chem. News, July 14, 1860.)

The Tannic Acid of Hops has recently been the subject of investigations by Prof. Wagner. He found it to precipitate iron sal's green, and not to yield gallic or pyrogallic acid, but instead of the latter oxyphenic (pyrocatechuic) acid. Hops of different age contain no gallic acid, and between 3.17 and 5.7 per cent. of tannin, which is very nearly allied to, possibly identical with, moritannic acid. Hops contain a yellow coloring matter of the behaviour of quercitrin (rutinic acid).—Dingler's Polytechn. Journ. cliv. Wittst V. Schr. ix.)

Fraxinin and Fraxetin.—The prince of Salm-Horstmar has made some further investigations with fraxetin. It is scarcely soluble in water, a little more in alcohol and ether, sulphuric and warm muriatic acid dissolve it with a yellow color; alkalies, their carbonates, &c., color the aqueous solution yellow. Prof. Rochleder found fraxinin to consist of $C_{42}H_{23}O_{27}$, fraxetin $C_{30}H_{12}O_{16}$.—(Pogg. Annal. cvii. Wittstein's V. Sch. ix.)

To detect Adulterations in oil of Turpentine.—M. Barbet, pharmacien-Bordeaux, suggests to test by Gay-Lussac's areometer, by distillation and careful evaporation to dryness, and by agitating 10 grammes with 8 drops liquor ammoniæ, which latter separates from the pure oil without producing a precipitate or emulsion.—(Journ. de Pharm. Ph. de Bordeaux. 1859. Wittst V. Lehr. 1860.)

Herring Pickle and Propylamin.—The crude pickle is used in agriculture as a manure; for an analysis of this and some new observations on propylamin, from Journal de Pharmacie, see Am. Journ. Pharm. vol. xxxii. p. 316.

Iodide of Ethyle.—Processes for this preparation by Lautemann in Chem. News, from Annal. der Chem. u. Pharm. transferred to Am. Journ. Pharm. vol. xxxii. p. 321.

Iodide of Propylamin.—This new preparation is proposed by Benj. J. Crew, in the Am. Journ. Pharm. vol. xxxii. p. 398.

Transformation of Starch into Glucose and Dextrine.—Some observations of M. Musculus from Comptes Rendus.—(Chem. News, May 19, and Am. Journ. Pharm. vol. xxxii. p. 423.)

Oxide of Amylene.—M. Bauer has obtained oxide of amylene by a process published in Journ. de Pharm. et de Chim. and Chem. News, May 12.

Beet Root Sugar.—M. Pésier has a new method of defecating the juice of beet by means of two volumes of alcohol to one of the juice. This renders animal charcoal unnecessary, and the loss of alcohol is only equal to one-fifth the cost of the charcoal.—(Cosmos and Chem. News, May 12)

Acetylene.—Under this name a gaseous quadricarbide of hydrogen ($C_4 H_2$) has been isolated by M. Bertholet. It only differs from aldehyde ($C_4 H_4 O_2$) and from glycol, ($C_4 H_6 O_4$) by the elements of water—(Comptes Rendus and Chem. News, May 16, and June 9.)

Chemical reactions of Atropia.—Dr. T. G. Wormley publishes a series of experiments in the Chem. News, June 15.

Tinctorial Properties of Albumen.—M. Guinet has observed some new facts in relation to the reaction of colors with albumen.—(Rept. de Chim. and Chem. News, May 19.)

Uncrystallisable Atropia.—The resinoid deposite occurring in the precipitation of the alkaloid may be separated by care in the process. It has been distinguished by the name *Belladonnine*.—(Chem. News, May 29.)

Preparation of Nicotine.—M. Debrise prepares this by passing heated steam through a mixture of the leaves with lime, collecting the condensed steam, adding acid and concentrating, treating with ammonia and ether to recover the alkaloid.—(Moniteur Scientifique. Chem. News, May 29, Am. Journ. Pharm. vol. xxxii. p. 424.)

Estimation of Chlorine and Sulphur in Caoutchouc.—Remarks of MM. Cloez and Gerard, from Comptes Rendus in Chem. News, May 29.

Formation of Fuschine.—This is one of the new anilin compounds described by M. Bechamp in Comptes Rendus; translated for Chem. News, June 2.

Vulpinic Acid.—Moller and Strecker have investigated the nature of this product contained in *Cetraria vulpina*, a lichen found in Norway. The acid is used in connection with nux vomica to poison wolves.—(Annal. der Chem. und Pharm. Chem. News, June 2.)

Analysis of Red Sandal Wood.—H. Dussance, of New Lebanon, N. Y. contributes an essay to the Am. Journ. Pharm. vol. xxxii. p. 6.

Solution of Indigo in Sulphuric Acid Decolorized by Volatile Oils.—Remarks of C. Frederking, of Riga, who has, however, been anticipated six years, by Dr. Plummer, an American observer.—(Am. Journ. Pharm. vol. xxxii.)

Alcoholic Fermentation.—L. Pasteur's observations from Comptes Rendus as published in Am. Journal Pharm. vol. xxxii. p. 62.

Cellulose and the Composition of Wood.—An important discussion has been held in the French Academy growing out of the recently discovered solubility of cellulose in cuprate of ammonia. M. Fremy argues from the insolubility of some cellular membranes that cellulose exists in different isomeric conditions. M. Payen, on the contrary, attributes this insolubility to foreign matters.

Odors.—M. Chevreul's researches on odors give rise to some further observations on this difficult subject in the Am. Journ. Science and Arts, Nov. 1859. Hydrogen is stated to be *par excellence* the exciting cause of odors while oxygen appears to act the chief part in their perception.—(See Am. Journ. Pharm. vol. xxxii. p. 77.)

Gallic and Gallhumic (Metagallic) Acid.—Dr. F. Mahla, of Chicago, details some experiments.—(Am. Journ. Sci. and Arts, Nov. 1859, and Am. Journ. Pharm. vol. xxxii. p. 79.)

Determination of Grape Sugar, Cane Sugar, and Dextrine in their Mixtures.—J. G. Gentile, from Dingler's Polytech. Journ. in Lond. Chem. Gaz. and Am. Journ. Pharm. vol. xxxii. p. 84.

Artificial Formation of Tartaric Acid.—Prof. Liebig has discovered this acid among the products of decomposition of sugar of milk by nitric acid.—(Büchner's N. Repert. and Am. Journ. Pharm. vol. xxxii. p. 86.)

Coumarin.—Prof. Procter finds this principle present in *Liatris odoratissima*, a plant of the natural family Asteraceæ, abounding in the southern United States, and distinguished by its agreeable odor.—(Am. Journ. Pharm. vol. xxxi. p. 557.)

Mannite in Leptandra Virginica.—Prof. E. S. Wayne being requested to examine a sample of crystals obtained from the residuary solution left after precipitating leptandrin from the alcoholic tincture of the root finds it to be mannite.—(Am. Journ. Pharm. vol. xxxi. p. 557.)

Determination of Quinia in Peruvian Bark.—A process by the use of chloroform, is given by R. Kliest, in the German Journals, translated by J. M. Maisch, for Am. Journ. Pharm. vol. xxxi. p. 565; see also method of MM. Glenard and Guilliermond, from Journ. de Pharm. et de Chimie. Chemical News, Feb. 4, 1860.

"Mauve" Dye.—The patent of Mr. Perkins for producing and applying the new and popular lilac and purple shades, from combinations of aniline, toluidine, xylidine and cumidine, with each other, and various other chemical agents.—(Lond. Pharm. Journ. Aug. 1859, and Am. Journ. Pharm. vol. xxxi. For other patents, see Chemical News, Dec. 10, 1859, Jan. 21, 1860.)

Examination of Indigo.—Joseph Müller of Prague, gives the result of his experiments, in Wittstein's Vierteljahrschifte translated for the Am. Journ. Pharm. vol. xxxi. p. 570.

Examination of Potato and Rye Whiskey.—S. J. Keppel publishes the result of experiments.—(Ibid.)

Examination of Scammony.—Franz Keller publishes in Liebig's Annalen, researches on the decomposition of this resin by acids, and by potash.—(Lond. Chem. Gaz. Am. Journ. Pharm. vol. xxxi. p. 574.)

Some principles in Convallaria majalis.—G. F. Walz publishes the

result of investigations on the Lily of the Valley, in which, he finds two principles, convallarin and convallamarin, the former crystalline and acid, and the latter pulverulent and bitter.—(Wittstein's Vierteljahrschrift, and Am. Journ. Pharm. vol. xxxi. p. 577.)

Researches on Colocynth.—Watz has published processes for extracting colocynthine colocynthidine and other constituents.—(Neues Repert der Pharm. and Chemical News, Dec., 1859. See also Journ. Md. Col. Pharm. March, 1860.)

A new Sugar.—Much attention has been devoted to the subject of sugars, their classification with reference to composition, fermentability, &c., and besides the numerous sugars previously studied, *Trehalose*, a body isomeric with cane sugar, derived from Turkish Manna, by M. Berthelot.—(Annales de Chem. et de Pharm. Lond. Ph. Journ. Sept. 1859.)

Carbolic Acid as a Disinfectant.—A dilute solution of carbolic acid (or creasote,) is found by M. Calvert, of Manchester, to preserve a corpse injected with it, for several weeks; a small quantity added to urine, will preserve it from decomposition for weeks, and it will prevent the gallic fermentation from taking place in the solutions of tanning substances.—(Lond. Pharm. Journ. Oct. 1859.)

Isopurpuric Acid.—Under this name M. H. Hlasiwetz describes a substance obtained by the action of cyanide of potassium upon carbolic acid.—(Annalen der Chemie und Pharmacie.)

Bread making.—A new process for the manufacture of bread, by forcing carbonic acid into the water to be used in forming the dough, was introduced in the chemical section of the British Association at Aberdeen; it is said to be used successfully in London. The use of yeast is superseded.

Anhydrous Alcohol.—Casoria recommends anhydrous sulphate of copper as a test for water in alcohol, which is manifested by the white salt becoming blue. 320 parts of this anhydrous salt are sufficient to deprive 500 parts of alcohol of all its water.—(Ph. C. Halle, Schweiz, Z. f. Ph. v.)

Ess. Oil of Valerian.—M. Pierlot announces the result of his researches on the composition and pre-existence in the root of this oil.—(Répert. de Pharm. Juin, 1859, and Am. Journ. Pharm. vol. xxxi. p. 414; see also Chem. News, Dec. 24, 1859, and Am. Journ. Pharm. vol. xxxii. p. 138.)

Cyanide of Potassium in Segar-smoke.—M. Marchand of St. Germain, states that cyanide of potassium is formed during the combustion of segars made from belladonna and other solanæ, by the decomposition of alkaloids and nitrate of potassa present.—(Répert. de Pharm. Mai, 1850. Am. Journ. Pharm. vol. xxxi. p. 415.)

Constitution of Solania.—M. Otto Gmelin says, that solanin does not contain nitrogen, as generally supposed, so that it must be removed from the list of organic bases.—(Annal. der Chimie und Pharm., and Am. Journ. Pharm. vol. xxxi. p. 417.)

Essence of Scurvy Grass.—M. G. Eiseler has analysed the leaves of *Cochlearia officinale*, and investigated the distilled products.—*Arch. der Pharm. and Am. Journ. Pharm.* vol. xxxi. p. 416.)

Determination of Tallow in Wax.—An abstract and some investigations by E. Geith and Dr. Büchner on this subject, will be found in "The Druggist," 1860.

Leon Krafft and Tessié du Mottay have employed chloride of zinc with success in the saponification of fatty bodies.—(*Comptes Rendus and Am. Journ. Pharm.* vol. xxxi. p. 431.)

Caryophyllin.—An economical process for this proximate principle, by Dr. Thos. W. C. Martius, from one of the German Journals, is published in the *Lond. Ph. Journ.* Sept. 1859, and in the *Am. Journ. Pharm.* vol. xxxii. p. 64.

Qualitative determination of Tannin.—Gustav Müller has published researches on this subject, which have been translated for the *Chemical Gazette*, and will be found in the *Am. Journ. Pharm.* vol. xxxi. p. 429.

The action of Nitric Ether on Iodide of Potassium has been investigated by E. Juncadella, who notes in the *Comptes Rendus*, Feb. 14, 1859, the formation of hydriodic ether and other products.—(*Am. Journ. Pharm.* vol. xxxi. p. 438.)

On the composition of Gutta Percha.—Observations of M. de Baumhauer, transferred to the *Lond. Ph. Journ.* June, 1860.

Acrid principle of Ranunculus sceleratus.—O. L. Erdmann's investigations translated by J. M. Maisch, from Büchner's *N. Repert. Am. Journ. Pharm.* vol. xxxi. p. 440.

Vegetable Parchment.—Prof. A. W. Hoffman publishes in *Ann. der Ch. und Ph.* cxii. 243, a report to De la Rue & Co., of London. The honor of the scientific discovery of this transformation belongs to Messrs. J. A. Poumarède and L'Figuier, of Paris, but the perfection of the process is the work of W. E. Gaine, of England.

Composition of Petroleum.—Drs. Bussenius and Eisenstuck have made this the subject of experiment as collected near Schrede, a village near Hanover, Germany.

Reactions of Tincture of Guaiacum.—H. Schiff has made observations on this subject.—(*Ann. der Ch. und Ph.* cxi. 373.)

The influence of Chlorous Acid on Organic Substances.—J. Schiel, *Ann. der Ch. und Ph.* cxii. p. 73, has obtained some results translated by J. M. Maisch.—(*Am. Journ. Ph.* xxxii. p. 443.)

Quercitrin.—H. Hlasiwetz has studied this substance.—(*Annal. de Chem. und Ph.* cxii. 96. *Ibid.*)

Kinovin and Cinchonic Red.—H. Hlasiwetz has also treated these subjects.—(*Annal. der Chem. und Ph.* cxi. 182. *Ibid.*, and *Lond. Pharm. Journ.* May, 1860.)

Determination of Albumen and Syntonin.—C. Boedeker.—(Annal. de Chem. und Ph. cxi. 195. Ibid.)

On the herb and Oil of Cochlearia Officinalis.—Essay of Dr. Otto Geiseler, translated for Journ. Md. Col. Pharm. March, 1860.

Synthesis of Acetic Acid.—J. A. Wanklyn has accomplished this by a process detailed in Ann. der Chem. und Ph. cxi. 234. Ibid.)

On Guaiac Resin.—Prof. Hlasiwetz has written on this subject.—(Ann. der Chem. und Ph. cxii. 182. Ibid.)

Odor of Horseradish.—Prof. Hlasiwetz has closely imitated this by combining an alcoholic solution of iodoform with sulpho cyanide of potassium.

Amyloid Substances, constituents of animal bodies.—The presence of starch in the animal economy, is described by Dr. Charles Rouget, as being necessary to their existence, and he attributes the existence of sugar in the system to the natural waste of the amylaceous element.—(Half Yearly Abstract of Med. Science, from Journ. de Physiologie.)

Transformation of Lactic into Propionic Acid.—E. Lautemann, communicates a process for producing this reaction.—(Ann. der Chim. und Ph. cxiii, translated by J. M. Maisch, for Am. Journ. Pharm.)

The conversion of Lactic Acid into Alanin.—Prof. H. Kolbe, has effected this change—(Ibid.)

Preparation of Lactic Acid.—Lautemann proposes a modified formula for this acid.—(Ibid.)

Copal Resin.—Prof. J. J. Schibler, has examined some of the products of its dry distillation.—(Ibid.)

Acrolein.—Preparation from chloroform described by H. Hübner and A. Genther.—(Ann. der Chem. und Ph. cxiv. Am. Journ. Ph. vol. xxxii.)

Conversion of Malic and Tartaric Acids into Succinic Acid.—R. Schmitt's process.—(Ibid.)

Nitro-Benzole from Oil of Turpentine.—Schiff converted the brown residue from the dry distillation of oil of turpentine with nitric acid into anilin.—(Ibid.)

Electrolysis.—Prof. H. Kolbe finds that succinate of soda yields on the positive pole carbonic acid and oxide of methyl, and lactate of potassa, carbonic acid and aldehyde.—(Ann. der Chem. und Ph. cxiii. p. 244.)

Gelose.—M. Payen calls attention to this gelatinous substance derived from *Gelideum corneum*, *Plocaria candida* and other weeds, forming a jelly with 500 times its weight of water.—(Répertoire de Pharmacie, Jan. 1860, and London Pharm. Jour. March, 1860.)

Extract of Soap Bark.—Professor Bleckrode, of Delft, Holland, contributes to the Journal of the Society of Arts an account of *Quillaya saponaria*, and of saponin, its uses, &c.—(London Pharm. Jour. March, 1860.)

New use for Paraffine and Naphthaline.—A patent has been taken out for a mixture of these organic products for lubricating cartridges.—(Chem. News, Dec. 10, 1859.)

Quinic Ether.—A preparation under this name has been used in Austria as a remedy for intermittents; it is given by inhalation with the result of arresting the paroxysm, and preventing its return. It is made by distillation of sulphuric acid, quinate of lime and alcohol, and is less volatile than ether, colorless and agreeable in odor. M. Bathé publishes, in the *Moniteur Scientifique*, a paper designed to show that this is not true quinic ether, but a complex substance which is never obtained twice alike.—(Chem. News, Dec. 10, 1860.)

Isomeric Alkaloids.—C. Greville Williams has discovered some characteristic reaction by which to distinguish chinoline from cinchonia, from that obtained from coal tar having the same composition.—(Chem. News, Dec. 17, 1859. Am. Jour. Pharm. vol. xxxii. p. 179.)

Murexide Colors in Cotton Printing, by Dr. Von Kurrer from Polytechn. Centralblatt.—(Ibid.)

Chinovine.—H. Hlasiwetz and Dr. Von Gilm, find cinchonic red to be a glucoside.—(Chem. News, Dec. 17, 1859, from Chem. Centralblatt, also Am. Jour. Pharm. vol. xxxii. p. 143.)

Extraction of Potato Starch.—E. Anthon suggests the conversion of the residue of the starch left in the pulp into sugar.—(Ibid.)

Detection of Picric Acid in Beer.—M. Lassaigne's test is said to detect one eighteen-thousandth of this adulteration.—(Chem. News, Dec. 17, 1859.)

Cubilose.—This name is applied to a new principle found by M. Payen in the Chinese edible bird's nests; it is a peculiar secretion of the swallow, analogous to animal mucus, containing nitrogen and sulphur.—(Chem. News, Dec. 24. Am. Jour. Pharm. vol. xxxii.)

Butyric Acid.—It is surprising, the immense number of decomposed materials which are found to contain this offensive substance.—(See Chemical News, Jan. 7, 1860.)

Helianthus Annuus.—The seeds have been analyzed by A. Kromayer and Prof. Ludwig of Jena.—(Translated from Archiv. d. Pharm. for Am. Jour. Pharm. vol. xxxii. p. 135, by J. M. Maisch.)

Determination of Nicotin in Tobacco.—Schiel's process from Ann. der Chem. und Pharm.—(Ibid. p. 137.)

New test for Vegetable Alkaloids.—F. Schulze, of Rostock, proposes the acid mixture obtained by dropping pentachloride of antimony into solution of phosphoric acid as a test for most of the alkaloids with which it yields characteristic precipitates.—(Ann. der Chem. und Pharm. and Am. Jour. Pharm. vol. xxxii. p. 138.)

Pure Benzole from Coal Naptha.—A. H. Church publishes a process

for purification of benzole from this source, which he says yields a product identical with that obtained from benzoic acid.—(Chem. News, Dec. 31, 1859. Am. Jour. Pharm. vol. xxxii. p. 144.)

Analysis of Tokay Wine.—(Translated from Archiv. d. Pharm. for Am. Jour. Pharm. vol. xxxii. p. 145.)

Cyclamin.—Process for its preparation from the tubers of *Cyclamen Europæum*; also, description, analysis and medical properties, which are those of a poison, by Dr. T. W. C. Martius, from Büchner's N. Répert. translated by J. M. Maisch, for Am. Jour. Pharm. vol. xxxii. p. 154.

Action of Galvanic Current on Lactic and Succinic Acid.—Kolbe finds that lactic acid combined with potash is converted by galvanic current into aldehyde and carbonic acid, and that succinate of soda gives at the positive pole carbonic acid and oxide of methyl.—(Ibid.)

Fermentation of Mucic Acid.—M. Regnalt observes remarkable relations between citric and mucic acids, and finds the products of their fermentation to be identical.—(Comptes Rendus and Chem. News, May 12.)

Melampyrin.—A new kind of sugar by this name has been studied by M. Echler; it is obtained from *Melampyrum nemorosum*, *Schrophularia nodosa*, *Rhinanthus cristagalli*.—(Jour. de Pharm. et de Chim. and Chemical News, Jan. 28, 1860.)

Organo-Metallic Radicals.—Interesting researches by M. Augustus Cahours, abridged from Annales de Chimie et de Physique in the London Chemical News, Feb. 25 and March 3, 1860.)

"Mineral Oil" applied to the Lubrication of Watches.—For purification of the oil for this use, see London Chem. News, Feb. 25, 1860.

Purification of Paraffin.—P. Wagenman in Polytech. Centralblatt, recommends that paraffin which does not become clear, and remains too soft after purification with sulphuric acid, be melted with 5 or 10 per cent of oleine, and as this does not dissolve paraffin the mineral oil and oleine only are removed by pressure.—(Chem. News, Feb. 1860.)

Detection of Fusel Oil in Alcohol.—Chloride of calcium in small pieces is put into a beaker and just enough of the alcohol is poured over it to moisten the whole; the beaker is then covered up, and allowed to stand. In a short time if any fusel oil is present the odor will be quite perceptible.—(Chem. News, Feb. 25, 1860.)

Strychnia and Brucia.—Some experiments upon their derivatives, abbreviated from M. Stalschmidt's paper.—(Chemical News, March 24, 1860.)

Composition of Vegetable Gums.—M. E. Fremy has communicated to the French Academy the results of his investigations which tend to demonstrate that gum is a compound of lime with an organic acid, and not an immediate neutral principle.—(Pharm. Jour. 1860. Am. Jour. Pharm. vol. xxxii. p. 366. Previously noticed by Löwenthal, Chem. Gaz. Nov. 1855.)

Green Coloring Matter of Leaves.—M. Fremy has also investigated chlorophyl.—(Ibid.)

Carmine.—J. Attfield publishes an article on the adulteration of this coloring principle, with analyses of 15 samples.—(London Pharm. Jour. May, 1860, and Amer. Journ. Pharm. 1860.)

Kavaïne and Methysticine.—The editor of the Am. Jour. Pharm. publishes a "note" on this substance.—(Vol. xxxii. p. 135.)

Acrolein.—H. Hubner and A. Genther prepare it from 1 part glycerin, with 2 parts bisulphate of potassa by distilling to dryness; they describe its reactions and properties.—(See Am. Jour. Pharm. vol. xxxii. p. 449.)

Analysis of Pennsylvania Petroleum.—E. S. Wayne publishes in the Cincinnati Druggist, June 15, 1860, description and analysis of this new article of commerce.

Chelidonic Acid.—C. Zwenger discovered this acid in the decoction of fresh celandine after the precipitation of chelidonic acid by acetate of lead; chelidonic acid is now precipitated by subacetate of lead, an excess of which dissolves it again. It is a strong acid, crystallizing readily, soluble in water, alcohol and ether, sublimable and converted into oxalic acid when treated with concentrated nitric acid. Its formula is $C_{14}H_{11}O_{13}$.—(Ann. d. Ch. und Ph. cxiv.)

Analysis of Koussou.—Dr. C. Bedall's results agree in their main features with Wittstein's analysis made 20 years ago. Pavesi's koussine or tæniine was obtained by a process analogous to that for santonin; it is a white, bitter, acrid powder, little soluble in water and weak alcohol, readily soluble in strong alcohol, ether and alkalies.—(Büchner's Rep. viii.)

Detection of minute quantities of oil of Mustard.—The clear liquid is boiled with caustic soda, or potassa; ammonia will be evolved and is recognized by red litmus paper; the alkaline sulphuret is detected by nitroprusside of sodium in the cold liquid, which possesses the odor of garlic. These reactions are recommended by Dr. Pincus.—(Büchner's N. Repert. viii.)

The optical behaviour of artificial Tartaric Acid, according to Dr. Bohn, is the same as that of the natural acid, both before and after the addition of a little boracic acid, which doubles the right deviation of polarized light.—(Büchner's N. Répert. ix.)

Explosion of Gun Cotton.—For an account of an explosion which occurred in Greene street, New York, from the Am. Journ. of Photography, see Druggists' Circular, Feb. 1860.

Purified Oxygall.—Article from Bud. de la Soc. d' Encouragement.—(Ibid.)

On the Solubility of Starch.—Dr. C. Jessen calls attention to the solubility of starch in cold water, from Poggendorff's Annalen.—(Ibid.)

Chimaphila Umbellata.—An inaugural essay by Samuel Fairbank.—(Journ. Md. Col. Pharm., March, 1860.)

The Acrid Principle of Ranunculus Scleratus.—Translated from Wittstein's Viertelj.—(Ibid.)

Impure Veratria.—An analysis of a sample of accidentally impure veratria.—(Am. Journ. Pharm., vol. xxxii. p. 42.)

Notes on Benzoic Acid and some Benzoates. By J. M. Maisch.—(Am. Journ. Pharm., vol. xxxii. p. 204.)

On Podophyllum Peltatum, with quantitative proximate analysis, by William G. Parrish, of Philadelphia.—(Am. Journ. Pharm., vol. xxxii. p. 208.)

On the Seeds of Phellandrium Aquaticum.—An inaugural essay with analysis, by Charles Fronfield, jr.—(Am. Journ. Pharm., vol. xxxii. p. 211.)

Green Fruit of Diospyros Virginiana.—A proximate analysis of persimmon, by John E. Bryan.—(Ibid, p. 215.)

Carypha Pumos.—An analysis of the ashes of this species of palm, by Herman Fritsch.—(Am. Journ. Pharm., vol. xxxii. p. 213.)

The non-poisonous nature of Methyl Strychnia.—M. Stahlschmidt's investigations.—(Ibid, p. 220.)

TOXICOLOGY.—SALE OF POISONS, ETC.

The Legislation in England on this subject, together with the occurrence of several conspicuous cases of poisoning among us, has led to the passage of laws by the Legislatures of New York and Pennsylvania for the regulation of the sale of poisons. To economize the space of this lengthy report, we refer to these laws as published in the Am. Journ. Pharm., vol. xxxii. p. 376 and 378, and the Am. Drug. Circular, June, 1860.

The provisions of these laws, though regarded by the best informed as very imperfect, are, we believe, generally respected and conformed to by pharmacentists, in these States, the guarantee of a respectable name being required for every sale of the articles specified, and a record being made at the time to facilitate the tracing out of cases of criminal or accidental poisoning.

Accidental Deaths from Poisons.—Cases are recorded in the English journals especially, of taking arsenic, sulphuric acid, Burnett's disinfecting fluid, essential oil of bitter almonds, (ignorantly dispensed for the fixed oil,) of prussic acid, (taken to allay pain,) of Godfrey's cordial—of a mixture of 1 ounce of chloride of zinc and 4 ounces of hydrochloric acid—of strychnia in one case given by mistake for santonin, by a practitioner who had obtained it from a wholesale druggist, labelled Santonin. In November last, a case occurred in Philadelphia, in which sulphate of morphia was dispensed for sulphate of quinine, the prescription was transferred during its preparation, from the assistant who weighed out the in-

redients, to another who finished it without enquiring its composition. This melancholy affair led to the following presentment of the Grand Jury:—"The Grand Jury of the Quarter Sessions presented the carelessness in putting up physicians' prescriptions. The presentment says: 'The practice of verbally directing the compounding of prescriptions without written directions, should be wholly discontinued; and no one should in any case perform that delicate and important business without having the written prescription before him, and being at all times fully able to comprehend it, and know the medicines to be compounded. Neither should an apothecary suffer his attention to be divided between two or more prescriptions at one and the same time.'"

Suicides.—By cyanide of potassium—the mineral acids—laudanum—sulphuric acid—solution of nitrate of silver—hydrocyanic acid. The *Lancet* records the second case of suicide by nicotine, in London. The individual fell dead with the vial still in his hand. A case is recorded in which the lives of a photographer and his female companion were destroyed by cyanide of potassium.

Deaths from Chloroform.—At St. Thomas' Hospital, London, Richard White, aged 26, died suddenly while under the influence of chloroform, administered by inhalation, for the purpose of having a limb amputated. Dr. Renwick, a medical gentleman in Alloa, expired while under the influence of chloroform, administered to him during a surgical operation. His pulse and respiration being full and regular, no alarm was felt till after the operation, when all attempts to restore him to consciousness were unavailing, his pulse became imperceptible, his breathing less frequent, and death ensued. A Mrs. Mansell died in England from the injudicious use of chloroform by inhalation, she being addicted to its habitual use.—The jury censured the druggist. At St. Joseph's Hospital, Lisbon, a man died recently in six minutes, from the effects of chloroform administered previous to the operation for a tumor on the face.

Suicide by Acetate of Morphia prevented.—The *Lancet* gives a remarkable case of recovery after taking 15 grains of acetate of morphia. The patient was a young pharmacien of Bordeaux. The poison was taken for the purpose of suicide; it was enclosed in a wafer and taken soon after dinner. Two hours elapsed before an emetic was administered. The coma was complete; by bleeding from the arm, consciousness was restored, but only for a few moments, and the fact of the poisoning disclosed; subsequently vomiting was induced, strong coffee and solution of tannin were freely administered, and the patient recovered. Dr. Salvist, who attended the case, attributes the recovery to the poison being taken in a wafer and after a meal; as digestion is suspended during coma, the greater part was probably not absorbed and was ejected during emesis.

Poisoning by Acetate of Lead.—A laboring man, named James Turner, is reported, in the *London Times*, as having been convicted of the murder of his wife by administering sugar of lead dissolved in beer.

Poisoning by Potato Fruit.—A girl 14 years old is reported in the *Lancet* to have died recently from eating of "potato bells."

Arsenic in Artificial Manures.—Prof. Davy, of Dublin, states that he detected arsenic in turnips manured with super-phosphates made by the use of sulphuric acid distilled from pyrites. His paper from the London, Edinburgh and Dublin Philos. Mag., is copied in the London Ph. Journal, September, 1859. In the same journal are several subsequent essays disputing the reliability of the statement.

Marsh's Test.—Dr. Odling read a paper on this subject at the meeting of the British Association for 1859. He finds the process of Marsh unreliable for minute quantities of arsenic in presence of organic matters.

Death from an overdose of Chloroform.—An interesting case occurred in Doncaster, England; a lady who had been habituated to the use of this anæsthetic, went to bed to inhale it, leaving her daughter only 10 years old to remove the cloth upon which the chloroform was poured, when it had sufficiently taken effect. An hour afterwards she was found to have expired. The jury strongly censured the druggist, who, contrary to the wish of her advisers, had persisted in selling it to her.

Metallic Arsenic Poisonous.—Professor Dr. C. Schroff contradicts the assertion of Bretschneider, that pure metallic arsenic had no poisonous properties, and proves by new experiments, that this metal is poisonous, but that the modification β of Berzelius and Gmelin requires a larger dose to produce the same effects than the modification α .—(Büchner's N. Repert. ix.)

Lead in filtering paper.—Professor Wicke found in some filtering paper 0.159 per ct. of lead, apparently in the state of carbonate.—(Ann. d. Chem. und Ph. cxii. Büchner's N. Repert. ix.)

An Opium Eater.—A case of much interest is taken from the *Lancet*.—(Drug. Circular, Feb. 1860.)

Behaviour of Arsenious and Arsenic Acid in Hydrochloric Acid subjected to distillation, by H. Rose, from Poggendorff's *Annalen*.—(Am. Drug. Circular, March, 1860.)

Poisoning by Stramonium Seeds.—A case is reported by Dr. T. L. Maden in the *Nashville Med. Record*, successfully treated by the use of laudanum as an antidote.—(Druggists' Circular, May, 1860.)

Strychnia in Woorara.—Dr. G. C. Wittstein finds on analysis, that both strychnia and brucia are present in the guiana poison.

Legal restrictions on sale of Poisons.—Dr. Benjamin Lee discusses this subject in the *Amer. Med. Monthly*.—(See Druggists' Circular, Oct. 1859.)

Horse Chestnuts Poisonous.—The Dundee Advertiser records the death of a boy four years of age in consequence of having eaten horse chestnuts.—(Chem. and Drug. May 15. See also Druggists' Circular, Nov. 1859.)

Death from carelessness.—A manufacturer of "Vermin Destroyer," in

Strafford, Eng., shook some of a mixture of arsenic and carbonate of baryta over a bridge into a mill stream; some lodged upon a projection of the bridge; two boys eat of it and soon died.—(Ibid.)

Tobacco against the Rattle Snake bite.—Mr. Peake mentions in the New Orleans Med. and Surg. Journal, the case of a negro bitten by a rattle snake in August, when the venom is considered most active. He immediately chewed and swallowed at least two ounces of tobacco. He had neither vomiting nor nausea, and though the limb swelled a little he was well the next morning.—(Ibid.)

Painted Toys.—Cases are recorded in the English journals of the poisoning of children from sucking the heads of dolls and other toys, in painting which red lead, white lead or other cheap pigments have been used.

Glonoin.—The Journal de Chimie Medicale relates a case in which a medical man was induced by a homœopath to put two drops of this liquid upon his tongue. He was immediately seized with uncontrollable fits of yawning, and soon became insensible, much to the horror of the homœopath. By the use of stimulants he was restored, and commenced to use the remedy in his practice with marked success. Dose, the fourth part of a drop in headache and neuralgia.

Poisonous Perfumery.—The police of Paris have been called upon to examine into the injurious effects of cosmetics. A suit for damages was instituted by an actress against a perfumer.

Anilin has been recommended as an antidote against the poisonous effects of chlorine, taken by inhalation.

New use of Prussic Acid.—Prof. Christison publishes an account of the successful use of this poison in the capture of whales. It was attached to the harpoons in glass tubes.—(See Drug. and Chem. Aug. 15, 1860.)

Poisoning by Tincture of Aconite Root.—A case which recovered under the use of decoction of coffee, reported by Dr. Heighway in Cincinnati Lancet.—(Druggist, Dec. 1859.)

Detection of Metallic Poisons.—Prof. Bloxam, of Kings College, gave the results, at a meeting of the Chemical Society, of a series of investigations upon the use of Electrolysis, copied in the London Pharm. Journ., January, 1860.

Arsenic in Gray-powder.—The presence of arsenic or antimony in the commercial mercury with chalk, sold in England, as alleged in the Smethurst trial, has been proven to be untrue, by the experiments of Prof. Redwood, detailed in the London Pharm. Journal, March, 1860.

Lead in Snuff.—The cases of lead poisoning from the use of snuff contaminated with carbonate of lead, from the lead foil in which it is packed, are noticed in German journals. In some cases 2½ per cent. of lead has been detected.

Poisoning by White Precipitate.—A case of the alleged wilful murder of a child by this rare poison is reported in the London Pharm. Journal, February, 1860.

Arsenic in Paper-Hangings.—The Manchester Guardian gives three cases of poisoning from this cause, which terminated in convalescence, though not without serious and protracted illness. The patients were children, placed in a room recently papered with green paper, in which a fire was kept. A correspondent of the Chemical News calls attention to the complete protection furnished by a suitable sizing over the surface of the paper, which is too often omitted.

Poisoning from Inhalation of Aconite Dust.—Dr. Isaacs related in the Kings Co., New York, Medical Society, the case of an apothecary's clerk, who was rendered very ill from the effects of pulverizing aconite root. The symptoms had not subsided at the end of two weeks.—(Med. Times and Gazette.)

Effects of Fat in Arsenic Poisoning.—Dr. Blondlot has communicated to the French Academy, the result of experiment, that the slightest quantity of greasy matter in contact with arsenious acid, will reduce its solubility to about one-twentieth what it was before. He therefore proposes its use in cases of poisoning during the delay in obtaining more efficient antidotes.

Preserved Citron contaminated with Copper.—M. Bauwens, jr., of Ghent, has detected copper in six samples of this preserve, and attributes it to the vessels in which prepared.

Orpiment in Buns.—A case of wholesale poisoning is recorded in the English journals, arising from a druggist selling to a baker in Clifton, some orpiment, (yellow sulphuret of arsenic,) to impart a yellow tinge of color to bath buns, in imitation of the shade they acquire when eggs are used in their preparation. No deaths occurred, though several cases of extreme illness resulted.

Adulteration of Santonin.—A young girl died lately in Brazil after taking six grains of santonin, which, on examination, proved to contain 20 per cent. of strychnine.—(L'Union Medicale.)

French Law.—A man named Tessier was recently condemned to one month's imprisonment and 50 francs fine, and also 300 francs damages, for selling sulphate of zinc for sulphate of magnesia, under a charge of what the French law calls injuring and wounding by imprudence. His employers, the MM. Raspails, were each fined 100 francs for selling medicines without being licensed apothecaries.

Chemical Reactions of Strychnine.—Dr. T. G. Wormley publishes a concise article in the London Chemical News for April 14th and 28th.

Arsenic in Trisnitrate of Bismuth.—Mr. John Morland, analytical chemist, finds chlorine in the commercial sub-nitrate, and attributes the traces of arsenic found in it to the greater solubility of arseniate of bis-

muth in aqua regia, probably used in the preparation, than in nitric acid alone, and to its precipitation as subchloride on addition to water.—(London Pharm. Jour. Jan. 1860, and American Jour. Pharm. vol. xxxii. p. 169.)

Reinsch's Test for Arsenic.—Some observations on this test by J. Horsley.—(From the Chemical News, Dec. 10th, 1859; in American Jour. Pharm. vol. xxxii. p. 185.)

Arsenic Sublimates.—For discussion of this subject, in connection with testing, see London Pharm. Jour. May, 1860, p. 572.

Arsenic Eaters of Styria.—Charles Heisch, Esq., of Middlesex Hospital, London, gives a most interesting paper on this subject, in the London Pharmaceutical Journal.—(Chemical News, May 19th, and American Jour. Pharm. vol. xxxii. p. 435.)

Adulterations.—A chemist in Quebec has recently published the results of analysis of certain articles purchased in New York. Pickles labelled, "No sulphate of Copper," contained sulphate of iron instead. Sherry wine contained an immense quantity of salt; green tea contained copperas; gin was whisky and essence of juniper. In snuff he found peroxide of iron and other chemicals to the extent of one-fifth of its bulk.—(Ibid.)

Tests for Strychnine.—Prof. Lethby publishes in the Lancet, copied into the Chemical News of June 9th, some remarks on the chemical reactions of strychnine.

Oxygen an Antidote for Ether and Chloroform.—M. Ozanam has experimented upon animals rendered comatose by these anæsthetics, and finds oxygen to produce a rapid abatement of the symptoms. He recommends that oxygen be always on hand when ether or chloroform is administered to reanimate the patient, in case of accident.—(Comptes Rendus. Chemical News, July 21st.)

Detection of Croton Oil in Mixtures.—Paper by J. M. Maisch—(Am. Jour. Pharm. vol. xxxii. p. 306.)

Death from Careless use of Hair-dye.—Prof. W. E. A. Aiken calls attention to a case of poisoning by one of the constituents of a hair-dye, which on examination proved to be a solution of cyanide of potassium.

Caffein as an Antidote to the poisonous effects of Opium.—Prof. H. F. Campbell, of Georgia, reports, in the Southern Medical and Surgical Journal, a case which seemed hopeless, but was treated by an injection of solution of caffeina in coffee, with entire success.

Diluted Milk.—J. M. Maisch gives the results of an analysis of a sample of milk, in American Jour. Pharm. vol. xxxii. 401.)

In conclusion, this Report is respectfully submitted.

EDWARD PARRISH,
Chairman of the Committee.

REPORT ON HOME ADULTERATIONS.

The Committee upon the subject of Home Adulterations, appointed at the annual meeting of this Association held in Boston last year, respectfully report :

The subject of Home Adulterations is one worthy the careful consideration of every member of society, whether pharmacist, physician, or consumer—and *all* belong to the latter class—because of the pernicious and often dangerous results which ensue from the use of articles mixed with deleterious substances, or deficient in power, owing to inert substances used to enhance the profit of the unscrupulous tradesman.

Your Committee feel deeply the responsibility of their duty ; they feel that much ought to be said and done which they dare not take the responsibility, as individuals, of saying and doing. They trust that the time will come when State legislators, or the General Government, will cause such penalties to be affixed to the selling of adulterated articles that the business will cease to “pay,” and that “honesty” will be practised because it is “the best policy.” During the past year your Committee have had many articles of drugs, medicines and food submitted to their examination, and they have felt more and more the necessity of some means being devised for checking this abominable practice, which, in the language of another, “is undermining the very foundation of trade, viz. : faith in commercial integrity.”

We refer to the published report in our last year’s “Proceedings” for the definition of an adulteration as given by Doctor Hassall, of London, who has done more than any other to draw public attention to the alarming facts of this species of fraud. He says an adulteration consists in the intentional addition to an article, for the purpose of gain or deception, of any substance or substances, the presence of which is not acknowledged in the name under which the article is sold. The change of an article entirely, and selling it under a false name in place of another, constitutes a *substitution* and not an adulteration.

Thus briefly referring to the introductory of our last year’s report, we would say that all the views we there express we still

sustain. We have, during the past year seen nothing to cause us to change our opinion as to the dangerous and hurtful tendency of this unlawful practice; on the contrary, all our experiences confirm us in the views we there express, and tend to convince us more fully that the public do not know the extent to which they are cheated, nor would any intelligent community submit to the imposition were they once fully aware of the danger and risk they are exposed to.

Adulterations are practised for three principal reasons, as briefly stated by the author of "Falsification of Food:"

First.—For the purpose of making the substance more saleable, by improving its appearance by the addition of some body, either innocuous or otherwise.

Second.—To depreciate the quality by adding some substance which will diminish the *real*, without altering the *apparent* strength or general appearance. This is generally a very deadly fraud.

Third.—To depreciate the quality and "extend" the quantity, by the addition of some simple substance, as water, or, if a solid body, as sand, gypsum, &c.

The matter of adulteration of articles of food is quite properly within the scope of a report on Home Adulterations; and your Committee propose entering somewhat largely into this part of the subject, trusting that the Association will grant them indulgence.

It is a sad and alarming fact that "death lurks in the pot;" that the community are exposed to injury, disease and death, by the very food they live upon, and the tea, coffee and water they drink.

It is often urged in defence of many of these nefarious practices, such as the addition of some of the salts of copper and lead, or cocculus indicus, to articles of daily consumption, that they are "used in *very small* quantities." We grant the statement to be true, and are deeply, we trust truly, grateful, as we ought to be, that we are not murdered outright, but scientifically and handsomely killed by inches.

Who can estimate the results of the continued introduction into the system, day by day, and month by month, of these poison-

ous additions to articles of food. No substance, however small its daily use, which is decidedly poisonous and pernicious, can be used without producing, finally, disease or even death.

Any physician can tell you of cases where the seeds of painful and lingering disease have been planted by some slow, insidious poison. All of you are doubtless aware that disease often arises from the use of water through lead pipes; and who can say that of the many cases of "unknown disease," some of them may not have been caused by poison taken in the small but oft-repeated doses of the daily food.

We are aware that many, and among them even those of some scientific reputation, scout the idea of any trouble arising from water through lead, but your Committee feel that it is of such great importance that they cannot pass it by without a brief notice. It is a question upon which scientific men have differed; but with the present knowledge of the subject that we have, your Committee can but recommend, in every practical case, the use of some other substance than lead for the conveyance of water to be used for drinking purposes.

Where so large a possibility of injury exists, prudence would dictate an entire avoidance of the danger.

One of your Committee has been fully convinced of the great danger attending the use of water through lead pipe. He has known lead to be taken from a portion of the liver of a person who died with every symptom of acute lead poisoning, and who was considered by the attending physicians to be a victim of lead disease.

The susceptibility of individuals to this poison varies very greatly; many persons apparently suffer no inconvenience, although subjected to precisely the same exposure which proves fatal to others.

One of the most striking cases of extreme susceptibility to this species of poisoning which has come to the knowledge of your Committee is the following:

A man aged thirty-five, who was a house-servant in the city, at the time of his sickness, had never been exposed to the influence of lead, as far as could be ascertained, previous to entering his place of service.

He was employed by a private family, consisting of persons who were both older and younger than himself, and who had drank the water through a lead pipe for several years, in fact, ever since the introduction of the water into the city, without the slightest apparent injury. The man referred to, was from the country, and perfectly healthy and strong, upon his arrival in the city; he was a fleshy and robust man, and never had noticed any indications of paralysis.

He had been, in his situation as servant, exposed to lead poisoning in no other way than by drinking the same water that the family used, only three months, before he was attacked with violent symptoms of lead paralysis, without the premonitory symptoms of colic.

He was *completely* paralysed, excepting the muscles of respiration and the heart.

Even the muscles of the eyelids were useless, and the "blue line" upon the gums was apparent, which is the well known and usual attendant upon cases of lead-poisoning.

Under treatment of iodide potassium he completely recovered.

If such serious results *can* occur, is not the matter one worthy the attention of those who have in charge the public health.

The singular mode by which the lead is sometimes introduced into the system, also calls for care and watchfulness, to prevent the unknown and therefore unsuspected danger.

One of the members of your Committee was called upon by a physician who had a patient, a farmer, suffering apparently from lead poison, to make an analysis of some cider. From what source the lead was taken, was a mystery. The water used by the family was all drawn by an old-fashioned "well sweep" and bucket; no possibility seemed to exist that lead *could* be the cause, and yet all the symptoms were those of a plainly marked case of lead-poisoning. The attending physician finally thought of the cider which the farmer was in the habit of drinking, and as a matter of extreme precaution decided to have a portion of it analysed. From less than two quarts of that cider, metallic lead was obtained in substance sufficiently large to hold in the hand and prove its nature beyond question.

This caused an examination of the cask of cider, and from the bottom of the cask, upon draining off the cider, was taken a pint bowl full of mixed sediment and white lead.

This, of course, readily accounted for the farmer's lead disease. The cask used had been formerly filled with oil, and in putting it together the edges of the staves had been plentifully coated with lead, ground in oil, before driving the hoops, to prevent the possibility of leakage, afterwards when used for cider, the lead was dissolved out and the serious consequences followed.

These instances, taken from many, are given to show that those who speak and feel warmly on this subject of lead-poisoning, do have some reason for their opinions and feelings.

We are aware that this is not strictly an adulteration, but certainly, after all that has been said and written upon this subject, those who, being aware of the facts in the case, and who could avert the danger, go on deliberately using lead pipes for drinking waters, place themselves in the situation of the man who sets spring guns, and gets shot himself. When lead pipes are used in preference because they are "cheaper" than gutta percha, block tin or iron, does not *this* constitute an adulteration of the water?

We are led to speak of this subject of lead water, perhaps going beyond the limits which the Association have laid down for our Committee, by having met with, and known many instances, where sad trouble has been produced by this often despised cause.

The next article we would ask your attention to, is Milk:—

During the past year it has been the duty of one of your Committee to analyse a large number of specimens of milk. As many of you are aware, there exists a statute in some States regarding the sale of adulterated and unwholesome milk, and by virtue of that statute an Inspector of Milk is appointed by the authorities.

During the past year a large number of specimens have been analysed at the request of the Inspector of Milk for the city of Boston. With but one single exception, every specimen was found to be adulterated, many of them very largely.

The plan adopted has been to compare the amount of food contained in any milk examined, with that which, by the analysis

of a very large number of specimens of pure cow's milk, was found to be the *average* amount. The amount of food being ascertained in any given specimen, it is easy, by comparison, to find the relative worth of the sample to the standard, and thus ascertain the dilution with water.

The amount of milk sugar and salts was also estimated, and the difference between the weight of the Milk started with, and the sum of the weights of the food, milk-sugar and salts gave the weight of the water in any sample analysed. The amount of water which any milk contained, was not made the basis of comparison at all; the addition of water to milk decreases in a much larger degree the worth of the milk as a food yielding fluid, than it increases the *percentage* amount of water, and as the amount of *food* really constitutes the value of the milk, the analyses were based on this alone.

Water is the principal adulteration of milk; but to conceal this fraud and destroy the "skim milk" appearance, recourse must be had to several other adulterations, as the addition of coloring matter, salt, etc., to increase the weight and improve the flavor, both of which it does, the latter quite remarkably.

Sometimes poor milk, from cows that should not be milked at all, owing to their condition, is mixed with that sent to market. It is only by microscopical examination that this unwholesome and unclean milk can be detected. Specimens of this kind have been met with during the past year.

From the experience one of your Committee has had, he does not hesitate to say that the adulteration of milk is largely and systematically carried on. Who can judge of the amount of sickness caused to children by the use of this unwholesome and oftentimes poisonous food—poisonous, because decomposition has already commenced?

Much of the sickness among young children in many large cities may be fairly attributed to the bad and unhealthy milk which they almost of necessity receive; and to the poorer classes, those less able by other reasons to contend with such a diet, the greater portion of this milk is given.

The milk oftentimes is not served to consumers until the second

day after it is taken from the cow, owing to its being transported long distances, and when diluted with water the process of decomposition is much more rapidly set up.

Of the large number of specimens examined the past year, there has not been a specimen, with but one single exception, that was not acid to test when received for analysis.

A few specimens of milk analyses are here given to show the wide range of adulteration :

SPECIMEN No. 1.—Acid to test when received.—Sp. gravity
1·0265.

In one hundred parts—

Pure cows milk of average standard,	.	.	77·90
Water intentinally added,	.	.	21·10
			100·00

SPECIMEN No. 2.—Acid to test when received.—sp. gravity
1·027.

In one hundred parts—

Pure milk, average standard,	.	.	65·11
Water, intentionally added,	.	.	34·89
			100·00

SPECIMEN No. 3.—Acid to test, when received.—sp. gravity
1·027.

In one hundred parts—

Pure cow's milk, average standard,	.	.	59·30
Water, intentionally added,	.	.	40·70
			100·00

SPECIMEN No. 4.—Acid to test when received.—sp. gravity
1·024.

In one hundred parts—

Pure cow's milk, average standard,	.	.	55·81
Water, intentionally added	.	.	44·19
			100·00

SPECIMEN No. 5.—Acid to test, when received.—sp. gravity
1.029.

In one hundred parts—

Pure cows milk, average standard,		51.16
Water, intentionally added,		48.84
		100.00

SPECIMEN No. 6.—Acid to test when received.—sp. gravity
1.026.

In one hundred parts—

Pure cow's milk, average standard,		41.86
Water, intentionally added,		58.14
		100.00

But all "milk-men's milk" should not be condemned, for it is with pleasure we notice the single case referred to as being an exception to the general rule of adulteration.

This specimen was taken from the cart of the milk-man, and was said to be of the same quality that he always furnished, and upon subsequent inquiry no reason was found to doubt the truth of this statement:—

This milk was scarcely acid to test.—sp. gravity 1.037.

Analysis gave in one hundred parts—

Caseine and fatty matter (the food)		9.300
Milk-sugar, and salts,		5.300
Water,		85.400
		100.000

And upon comparing it, as all the others were compared, with our standard, it was found to be (8.13 per cent.) eight and thirteen hundredths per cent. above the standard quality.

Enough, perhaps, has been shown to place in a more prominent light the extent of this fraud upon the community; and if so, one object of your Committee has been accomplished.

The object of all this adulteration is pecuniary gain, regardless of the consequences to the invalid or child who depends upon pure and wholesome milk to restore or prolong life. The practice must be a lucrative one; a single fact will go far to prove this if proof is needed.

It has occurred that when parties have been selling milk which was adulterated, when warned by the inspector that their milk was bad, and that some change must be made in the quality, they have received from their milk-men a handsome bonus in money, for the privilege of continuing to supply them with "*pure milk*." We leave it for you all to judge whether this bonus is not recovered with large interest by the aid of the "*cow with the iron tail*."

The following communication from the milk inspector of the city of Boston, has been kindly furnished your Committee, and we beg leave to insert it here, feeling that any thing which so closely affects public health, must be of interest to this Association.

Boston, August 11th, 1860.

CHARLES T. CARNEY :

Dear Sir :—In the discharge of my duties as inspector of milk during the past year, I have examined more than fifteen hundred samples, and find that the quality of the milk is adulterated in proportion as the grade of society descends, and is most detrimental to the health of that portion of our citizens who, from other causes, are the least able to contend with it. In the analysis of more than fifty samples, the principal adulteration consists of water, varying in amount from twenty-two to more than forty-eight per cent., with an occasional addition of coloring matter, and often fine table salt. This adulteration is mostly done by the milk-men the afternoon or night previous to its delivery early in the morning, so that when the poor child or woman obtains the milk, decomposition has already commenced.

I have often inspected the milk in shops where the family with children lived ; the latter using the adulterated milk as their principal food ; I have found these children puny and sickly. Two cases occurred within the past month, where the mothers were unable to nurse their poor, sickly children, and were feeding them on the adulterated milk which they had for sale. A place was found for them near by, where pure good milk could be obtained ; they gladly availed themselves of it for their children, with great improvement, and a favorable result.

It is a well authenticated fact that a large proportion of the children of this city die under the age of five years, and our most distinguished chemists and experienced physicians are willing to bear testimony to the deleterious effects of adulterated milk.

Respectfully yours,

HENRY FAXON, Inspector.

Your Committee have had occasion the past year to examine some of the many articles sold as Yeast Powders, substitutes for cream of tartar, baking powders, &c.

Many of these are decidedly unwholesome and poisonous in their effects upon the system. We would caution all lovers of healthy bread to use sufficient care in the selection of substances from which to make this valuable "staff of life."

Some of the compounds referred to have been condemned by your Committee, but it is understood that they are sold now to quite a considerable extent.

We give an analysis of one of these compounds, and do not hesitate to say that the use of such an article in the daily bread, is, in our opinion, liable to be attended with serious trouble.

Analysis.—100 parts of this Powder consist of

Free Phosphoric Acid	6.53
Bone Phosphate of Lime, and Magnesia.	26.00
Sulphate of Lime	2.59
Sand	.76
Dextrine	64.12

100.

With the bone phosphates are included the usual phosphates of oxide of iron, and silicate of lime, present in bones.

The article is manufactured by calcining refuse bone-black, until the carbon has been consumed: the white powder is then finely ground and mixed with a definite proportion of crude phosphoric acid, obtained from another portion of bone powder; starch or ground rice is added, and the pasty mass is then carefully dried at a temperature allowing the acid to convert starch into dextrine.

One hundred parts of the powder, when mixed with solution of

bicarbonate of soda, and the precipitate dried at the temperature of baking bread, afford 31.16 parts of bone phosphate of lime.

As the product of decomposition when this compound is mixed with bicarbonate of soda, besides the phosphate of soda, is the salt called *bone-ash*, which does not exist, as such, in any part of the healthy system, or in food, the article can hardly be considered highly nutritious.

This salt, the bone-ash, in the state in which it exists in the bread, must act in the digestive process as *an absorbent of the normal phosphates in food, and in the secretions*, both of which contain them, with never more than two equivalents of base; thus it is liable to produce derangements of a serious character. The large amount of the phosphate of soda also, is an unnatural addition to food and must be eliminated, certainly never digested.

The use of this compound in bread-making is simply, in effect, adding finely ground bone dust and phosphate of soda to flour; the question which addresses itself to the judgment is, will such bodies improve the flour as an article of food?

If this wholly unnatural mineral mixture can be used with impunity, alum and gypsum may be substituted for it, as being more cleanly, equally nutritious, and dispelling the thought that we are consuming a vegetable fertilizer as an addition to our food.

The subject of liquors is one to which we ask your attention very briefly. The past year we have had occasion to examine many specimens of wines, brandies and liquors.

The amount of fraud in these articles is, as you are all aware, very considerable; but your Committee believe that in one popular idea, at present of considerable weight in the community, there is a great error.

We allude to the popular idea of strychnine in whisky. In a large number of whisky analyses made the past year, your Committee have not been able to detect, in a single instance, the presence of the least trace of strychnine. This, of course, is only negative evidence to the extent of these analyses, but your Committee have not been able to ascertain from any reliable source, that the practice of using strychnine in whisky is ever followed.

The fact also, that one part of strychnia will impart a sensible bitterness to 600,000 parts of water, would seem to preclude its being used for this purpose.

The practice of adulteration of liquors is, however, very largely followed.

From the volume called "Treatise on Wine Making," under the head of "Secrets to Vintners," we make the following extracts, showing the dangerous practices recommended sometimes for improving wine:

"*To hinder Wine from Turning.*"—"Put a pound of melted lead, in pure water, into your cask, pretty warm, and stop it close."

"*To soften Grey Wine.*"—"Put in a little vinegar wherein litharge has been well steeped, and boil some honey to draw out the wax, strain it through a cloth, and put a quart of it into a tierce of wine, and this will mend it."

In one instance on record, in Medical Transactions, vol. ii., page 80, Dr. Warren relates an instance in which thirty-two persons were made seriously ill by drinking wine adulterated with lead; of this number one person died, and another became paralytic. Your Committee give here an analysis of brandy, which was made the past year. The specimen examined was powerfully acid to test, and not a trace of tannin could be discovered in it. The alcoholic distillate was loaded with fusel oil. Artificial oil of bitter almonds was also present. Sulphuric acid was also present, probably in the state of soluble sulphate in the water used in the manufacture of the compound.

Analysis yielded in one hundred parts—

Alcohol, sp. gr. .793	57.00
Extractive and coloring matter,	1.60
Water, by loss,	41.40
Oil Almonds, Acetic Ether, Sulphuric Acid, not estimated, traces.	
	100.00

This was judged to be an entirely factitious article. Your Committee know of other brandy, entirely factitious, sold the past year.

The practice of reducing the cost of wines and brandies by adding proof spirit and water is very common. Your Committee would suggest the propriety of the publication of some few, plain

tests, by which pharmacutists may be governed in their selection of wines and liquors ; such as percentage amount of alcohol, freedom from lead and other metals, sulphuric acid, and other sophistications which are practised.

The matter is one eminently worthy public attention, for, as a general rule, the community at large do not know what a good and pure article is ; they are thus subject to much imposition, both as to quality and price. So valuable an article of the *materia medica* as pure wine, in the hands of a judicious physician, should not suffer under the odium of inefficiency and worthlessness. Your Committee are aware that all high-minded and honorable dealers in these articles would give their hearty support to any plan by which the public could be made acquainted with the quality and value of pure wines and liquors.

The presence of metallic poisons in both foreign and American liquors occurs more frequently, perhaps, than many are aware.

During the past year, in ordinary New England rum, your Committee have detected the presence of a poisonous salt of copper, not added to the liquor, but occurring in it from carelessness in the manufacture.

In the deposit from old Hollands also, copper, zinc, lead and iron have been found. The singular fact connected with this special contamination is, that in the liquor itself no trace of these metallic poisons could be found ; they appeared only in the deposit ; the action of the wood of the cask being sufficient, owing to long contact in transportation, to throw them down with the "extractive" and other insoluble residual matters. In the residue from foreign brandies these metallic combinations have not been found by your Committee.

But speaking more specially of drugs and medicines, your Committee will ask your indulgence for a short time.

The past year has seen opium held at a high price. A case of opium has been met with liberally charged with *shot*. All the shot that could be sold at five and a half dollars a pound, would be, of course, regarded as a mere pecuniary transaction—paying well.

As a *remedy*, however, the opium would outweigh the lead in value. A specimen of nitrate of silver, sold for a *pure* article

by a New York house, contained but 30 per cent. of silver. If it had been the article represented it should have yielded 64 per cent. of silver.

A fraud similar to this was alluded to in our last year's report.

The next article your attention is asked to is chloroform. During the past year your Committee have met with chloroform made by a professed manufacturer of chemicals, and sold to a highly respectable drug house. This chloroform was found to contain more than twelve per cent. of alcohol, and its specific gravity was below 1.40.

The purchaser was not at all satisfied, and upon returning it, he was told that it was bought for a pure article by the wholesale house, but from a source from which they did not usually purchase. It was invoiced "Pure Chloroform."

Upon further investigation the explanation was given, "that no more alcohol was present than was necessary for its preservation, it having been found that a *certain amount of alcohol was necessary for the preservation of chloroform.*"

Your Committee will offer no comments upon this scientific statement.

Finally, your Committee ask your indulgence if they have taken into consideration matters which are apparently not directly connected with our profession. We have felt, as we remarked at the commencement, that articles of food properly belonged to our investigations, when treating of *home* adulterations.

We trust the subject may continue to receive the attention of this Association.

Very much remains to be done before the community realize to what an extent these frauds exist, and to what dangers they are exposed.

It is a matter of vital importance to every one. The fact that we may be unconsciously, but surely laying the seeds of disease is an alarming possibility. We cannot place the matter in too strong a light, for the practice has a strong foundation, and it is a sad admission to make—*that of pecuniary gain, regardless of consequences.*

The habitual adulterator shields himself under the specious and cowardly excuse, "If I don't do it, somebody else will," and thus, with a *smothered*, but not *silenced* conscience, pockets his ill-gotten gains.

We would not have it inferred that there are not many manufacturers, or dealers in articles of food and medicine, who are not adulterators or dealers in sophisticated articles. We know of many upright and honorable men who scorn the practices we have alluded to, both on account of their injurious tendency and because they are dishonest; but your Committee are aware that there have been men who have yielded to the pressure, and have in a greater or less degree embraced the practices they inwardly condemn, *because they had a livelihood to get*, and could not contend with less scrupulous competitors for the length of time required to establish a reputation.

It is a sad thing to hear the remark sometimes made, "O, Mr. — is an *honest* man, in fact *too* honest to get a living in such and such a business."

Your Committee have heard this remark made, and have felt that there was more of truth than fiction in it, in instances within their knowledge. The trials and difficulties in the way of a *perfectly upright and honest* discharge of business duties are known to every member of our profession, and we trust that all in good time these trials and difficulties may be appreciated by the community at large, so that *no* man, in any profession or business, may be allowed to meet with disappointment or defeat because he is an honest man, and discharges, according to his conscientious convictions, the duties of his situation.

We know that success *must* ultimately attend upon the faithful and upright performance of duty; but, as was remarked to one of your Committee by a faithful, earnest, honest member of our profession, "It is a long road to travel, and hard to earn even the daily bread."

Your Committee thank you for your hearty support given them on the subject of Adulterations, and hope that some things may have been said that will cause more attention to be directed to this important matter.

Earnestly soliciting the co-operation of every member of our profession in exposing fraud and deception, whether of "home" or "foreign" origin, your Committee leave the subject in your hands, and respectfully submit this report.

CHARLES T. CARNEY, *Chairman.*

CHARLES BULLOCK,

A. P. SHARP,

E. R. SQUIBB,

E. S. WAYNE,

I. J. GRAHAME,

Committee.

SPECIAL REPORTS

ON SUBJECTS ALLOTTED FOR INVESTIGATION AT THE MEETING IN
BOSTON, SEPTEMBER, 1859.

OLEUM ÆTHEREUM.

BY EDWARD R. SQUIBB, M. D., OF BROOKLYN, NEW YORK.

“What are the changes which occur in the official Ethereal Oil (U. S. P. by keeping; and can these changes be retarded?”

The above enquiry embraces two distinct questions; and in order to answer them separately with a useful degree of accuracy, a number of experiments were commenced soon after the last session of the Association. The result of these experiments, together with deductions from former experiments and observations, lead the writer to the conclusions now to be given.

“What are the changes which occur in the official Ethereal Oil by keeping?”

The sensible changes are a separation into two unequal strata. The upper one of these is commonly the smaller,—is of a deep brownish straw color,—of an oily character and consistence,—much lighter than water, and not miscible with water, having a fragrant aromatic odor resembling pennyroyal, and a somewhat pungent highly aromatic taste resembling essential oil of pennyroyal. It is slightly acid to litmus paper at first contact, but becomes strongly acid after a short exposure to air upon the paper, and is soluble in strong alcohol.

The lower and commonly the largest stratum is of a dark brown color, so dark as to be quite opaque,—is not of an oily character,—is much heavier than water, and when dropped into water separates into oily globules which sink to the bottom, and a soluble portion which dissolves and renders the water acid. It has a fruity apple-like odor, and a pungent acid taste. It is acid to litmus paper, effervesces with carbonates, precipitates baryta and lime salts even in the presence of sulphurous acid, and carbonizes organic matter when heated upon it. It is insoluble in

strong ether, but is rendered soluble by the addition of a small proportion of the upper stratum.

Both the upper and lower strata are soluble in the spirit of ether used for the compound spirit of ether, whether added in succession or together; and when both are added they appear to reunite and form a compound spirit that is not sensibly different from that made from freshly prepared oil, except that it is very slightly tinged with a brownish color, and is slightly acid to litmus paper.

The character of the chemical changes which occur, are difficult to determine, and have not been studied with sufficient experiment and accuracy to warrant definite and precise statements concerning them. Therefore what now follows upon this point is to be regarded as the result of a judgment, based upon observations in practice, rather than as accurate results obtained by direct experiment.

The writer does not agree with those authorities who regard heavy oil of wine as a sulphate, or double sulphate, but rather with those who regard it as a sulphovinate of a hydrocarbon base, and for this prominent reason, that when pure and recent it fails in giving any of the characteristic reactions of sulphuric acid or sulphates.

If it be, as the writer believes it is, a sulphovinate of one or more hydrocarbon bases, the chemical changes which occur by keeping are probably, first, that a portion of the salt is decomposed by a simple separation into its proximate elements, just as chemically pure chloroform separates by keeping, and that after the separation, a small proportion of the sulphovinic acid is reduced to sulphuric acid, and that this reproduced sulphuric acid reacts upon the more loosely combined hydrocarbons by separating and combining with the elements of water and setting the carbon free.

The upper stratum is therefore regarded as mainly composed of the hydrocarbon base with a little ether. The lower stratum as being mainly sulphovinic acid, or a lower sulphovinate of the hydrocarbon base, holding in solution a considerable proportion of the original heavy oil of wine, rendered acid by a small portion of reproduced sulphuric acid, and colored by free carbon. By supply-

ing the matrix to the mixture of these two strata, namely, ether, they are made to recombine in the original form and proportion with the exception of the small portion which was decomposed into sulphuric acid water and free carbon, and the chain or circuit of the original compound is re-formed, and rendered permanent. If these views be true, the analogy with chloroform is very close and perfect in this respect, since as the writer has elsewhere shown decomposed chloroform may be regenerated and recombined by the similar use of its matrix, namely, alcohol.

The writer sees no reason to believe that in the changes by keeping, any decomposition into ultimate elements, or any substitutions occur, with the exception of the reproduction of the small portion of sulphuric acid, and the well known effects of the presence of this acid when free in the presence of loosely combined hydrocarbons.

The practical deductions from the views here offered are that compound spirit of ether made from the officinal ethereal oil which may have undergone this separation is medicinally nearly equivalent to that made from the freshly prepared oil, the small portion decomposed, and the slight acidity of such preparation might be safely disregarded in a medicinal point of view, particularly in view of the fact that the well made compound spirit of ether does itself become slightly acid by long keeping, especially when exposed to light and air. It is, nevertheless, much better to avoid all such changes whenever it is possible to do so; and this introduces the second question of the enquiry entrusted to the writer, namely,

“Can these changes be retarded.”

Upon this branch of the subject a number of careful experiments have been made with results so definite and satisfactory, that it may be stated that, within the limits of the ten months allotted to the preparation of this report, an admixture of two parts of stronger ether with one part of ethereal oil, altogether prevents the separation and decomposition of the oil, although it does not prevent its becoming slightly acid to litmus paper. The circumstance that the action upon litmus paper is slight upon first contact, but increases rapidly on exposure to the air, renders it probable that the effect is due to the formation of acetic or some

other organic acid from the alcohol and ethers present, as in the instance of sweet spirit of nitre, rather than to a decomposition of the heavy oil of wine.

Somewhere near the above designated proportion of ether is absolutely necessary to effect the purpose of keeping the oil, and it does not matter whether this proportion be diluted with alcohol or not, since alcohol has no apparent effect either to hasten or retard the separation of the ethereal oil. For instance, it was proved by experiment that not less than four parts of the spirit of ether used in making the compound spirit, was effective in preserving one part of the oil from the changes, and the steps of this experiment show that the separation is less as the proportion of ether added increases, quite independent of the amount of alcohol with which the ether may be previously mixed. This experiment proves conclusively that the opinion hitherto entertained and published by the writer that alcohol was a preservative agent was altogether erroneous. This error had, however, been detected in practice before the direct experiment was made.

It is useless to take up the time of the Association with a detail of the experiments made to determine the above points, as they were for the most part mere admixtures of the oil with different menstrua in different proportions, and were all based upon the well known fact that the oil when made at once into the compound spirit of ether keeps indefinitely. It is, therefore, judged sufficient to exhibit to the Association the various specimens which lead to these statements, together with specimens of the undiluted oil made at various periods during the past eight years.

A portion of the space saved by avoiding unnecessary detail of experiments may, however, be usefully occupied with some statistics of the process and results in preparing the official ethereal oil.

Since the last meeting of the Association the writer has used in preparing ethereal oil 1664 lbs. of sulphuric acid s. g. 1.845, and 686 lbs. or $100\frac{1}{2}$ gallons of alcohol s. g. .835. These materials yielded 87 fluid ounces, equal to 88.4 troy ounces, or 97 avoirdupois ounces, of the finished oil. The distillation occupied twenty-one days, one charge being distilled each day. It was per-

formed in seven-gallon French white glass retorts, and the charges required from eleven to seventeen hours for working. Three retorts were lost in the process; one breaking in the sand pot,—the other two being broken in the difficult and troublesome cleaning that is necessary after each charge, to free them from the adhering carbonaceous matter and thiomelanic acid. These retorts cost seven dollars each, but prove to be more economical than those made in this country, from being less frequently lost in the sand bath. The charge lost in the sand bath took fire, of course, and was totally lost. Two more of the twenty-one were partially lost by frothing over of the contents of the retort. The process required the almost undivided attention of one person, and a troublesome expensive apparatus, and was not devoid of danger.

Upon this scale, and with the best management that the writer's experience could suggest, the yield is by volume .684 per cent. of the alcohol or by weight .884 per cent.

In this process, as in all others where very large glass retorts are used with much handling, the larger the scale of operation within certain limits, the greater the loss. In the writer's experience the maximum yield is obtained in working the process with 2½ gallon retorts, as mentioned in a previously published paper on this preparation. But for a charge of this size, the time, attention and firing are so nearly the same, that it becomes more economical to get a smaller yield at a smaller expense.

Brooklyn, September, 1860.

CITRIC ACID,—ITS VARIABLE WATER OF CRYSTALLIZATION AND CONTAMINATIONS.

BY CHARLES T. CARNEY, OF BOSTON.

In reply to query No. 2 on the above subject, referred to me at the last meeting, I offer the following report:

The amount of water of crystallization is a question which I am not able by personal analysis, to respond to; but many eminent authorities have investigated the subject, and have found variable amounts of water, combined with the crystallized acid, and by

some, this variable amount, has been supposed to depend upon the temperature at which the acid was crystallized.

Berzelius regarding citric acid to be in the dry anhydrous state, a compound of

4	atoms carbon	or 4+6	eq. wt. of C	=	24
2	" hydrogen	or 2+1	" " H	=	2
4	" oxygen	or 4+8	" " O	=	32

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arrived at

as the equivalent weight of the acid in this state; but citric acid obtained in crystals by cooling a solution saturated at 212° F., is found to contain more equivalents of hydrogen and oxygen, (the elements of water,) and is regarded by Berzelius as a compound of citric acid and water, expressed symbolically.

$\overline{\text{Ci}}$ +Aq	or 4 carbon	4+6	eq. wt. C	=	24
	3 hydrogen	3+1	" H	=	3
	5 oxygen	5+8	" O	=	40

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which gives us

as the equivalent weight of the acid obtained in this way.

Liebig, however, regarding the hypothetical dry acid as having an equiv. wt. of 165, viz. carbon¹², hydrogen⁵ and oxygen¹¹ atoms, considers the acid crystallized by cooling a solution saturated at 212°F. as $\overline{\text{Ci}} + 3\text{HO} + \text{Aq}$ or $165 + 36 = 201$,—eq. wt. and the commercial crystals as $\overline{\text{Ci}} + 3\text{HO} + 2\text{Aq}$ or $165 + 45 = 210$ eq. wt.

It would seem from this, that citric acid may be regarded as a tribasic acid; combining with 1, 2, or 3 equivalents of water according to the conditions existing at time of the crystallization.

A want of sufficient time necessary for the proper investigation of this interesting subject, alone prevents my being able to speak, as I had hoped to be able to, from personal experiment and analysis.

The matter of impurities, however, I can speak of more fully. I have often met with citric acid contaminated with lead, and cases are on record where this poisonous substance has been no-

ticed by others; this can be often detected in substance, by dissolving the acid in water. If present as a soluble compound, it can be detected by sulphydric acid.

Citric acid sometimes contains sulphuric acid and salts of copper, being contaminated during its manufacture. I have found sulphuric acid in samples examined the past year, but have met with none in which I could detect copper.

Chloride of barium gives a white insoluble precipitate of sulphate of baryta in a solution of citric acid, adulterated with sulphuric acid. A salt of copper may be detected by the "rose color" produced by adding a few drops of solution of yellow prussiate of potassa to the solution of the suspected acid.

Citric acid is adulterated with oxalic and tartaric acids, and also with sulphate and citrate of lime. The acid adulterations just named may be detected by testing the solution of citric acid with carbonate of potassa. After brisk agitation, a pulverulent or crystalline precipitate of acid oxalate of potassa, or bitartrate of potassa, will fall down if either of these acids are present.

As to the special contamination to which my query refers, that of tartaric acid, it is easy to detect the presence of this substance by means of a solution of caustic lime.

All that is needed is to add a small portion of saturated solution of the suspected acid, to a portion of caustic lime water; using care that the acid does not become in excess, as tartrate of lime is soluble in an excess of acid. If tartaric acid is present in the citric acid under examination, a cloudiness and precipitation will occur, owing to the tartrate of lime, which is formed, falling to the bottom.

The presence of salts of lime is easily proved, by testing a solution of the citric acid, divided into two portions; the first made neutral by ammonia, and treated with oxalate of ammonia; if a precipitate occurs it proves the presence of lime.

The other portion is treated with chloride of barium, and if a precipitate occurs, it proves the presence of sulphuric acid. If chloride of barium produces no precipitate, and we have proved lime present in the first portion examined, it exists as citrate of lime, and shows the probability of chalk having been added to the

citric acid solution, while in process of manufacture, previous to its being crystallized.

Respectfully submitted.

CHAS. T. CARNEY.

ON SULPHATE OF AMMONIA, AS A SOURCE OF OTHER AMMONIACAL SALTS.

BY CHARLES BULLOCK, OF PHILADELPHIA.

Sulphate of ammonia is applicable to the manufacture of the other ammoniacal salts, and is now used extensively in the production of chloride of ammonium and carbonate of ammonia.

The advantages of the sulphate over the chloride, as a source of ammoniacal salts, are—

1st. It is more readily crystallizable, and thus more easily separated from the impurities contained in gas liquor, than the crude chloride.

2d. The sulphate has a more fixed character than the chloride; it is neither volatile nor deliquescent.

The disadvantages in the use of the sulphate, are—

1st. More bulk is required to represent a given quantity of ammonia than in the chloride. Sulphate of ammonia contains about twenty-six per cent of ammonia, and chloride of ammonium about thirty-two per cent. This discrepancy is, however, about compensated for by the difference in cost between the two salts.

2d. Sulphate of ammonia, unlike sal ammoniac, is not anhydrous, but contains one equivalent of water; this, however, does not operate as a practical objection. The manufacturers of ammoniacal salts prepare from gas liquor both the sulphate and chloride, the former for agricultural use, and for the liquor ammonia manufacturers; the latter for sublimation as sal ammoniac; and both are used in the manufacture of carbonate of ammonia.

Prof. Muspratt states that one manufactory near Liverpool makes during the winter months, from gas liquor, fifteen tons of impure chloride and six tons of sulphate, weekly.

It is estimated by a manufacturer of sulphate of ammonia, that about 900 tons of sulphate are consumed annually in the United States, in proportion as follows :

In manufacture of alum, ...	600 tons.
For agricultural purposes, ...	100 "
For other purposes, ...	200 "
	900 "

Out of 900 tons consumed, about 600 are imported.

Sulphate of ammonia of good quality is manufactured in New York and Philadelphia.

ON THE PREPARATION OF EMPLASTRUM ASSAFETIDÆ.

BY WILLIAM PROCTER, JR., OF PHILADELPHIA.

The following remarks are in reply to the tenth query of the list of questions offered at the meeting of 1859, viz.:

"What is the best process for preparing Assafetida Plaster so as to preserve the activity of the drug unimpaired?"

The present process for this plaster (U. S. P.) is as follows:

"Take of Assafetida, Lead-plaster, of each a pound.

Galbanum, Yellow wax, of each half a pound.

Alcohol, three pints.

Dissolve the assafetida and galbanum in the alcohol by the aid of a water bath; strain the liquor while hot, and evaporate to the consistence of honey; then add the lead-plaster and wax, previously melted together; stir the mixture well, and evaporate to the proper consistence."

Theoretically; about two-thirds of the weight of assafetida is soluble in alcohol; practically, even with the aid of heat, the residue is quite bulky, even when the gum-resin is malaxated in a mortar with the solvent; and the tears are difficult to disintegrate without that precaution. If this residue is separated and washed with alcohol, and the alcoholic liquid evaporated with care, and incorporated with the melted ingredients as directed, a good plaster results. The objections to the process are the slow action of alcohol, and the greater or less loss of volatile oil by the evaporation, if at the temperature of the water-bath. In view of

these objections the use of other solvents has been suggested. *A priori*, benzine, so noted for its solvent action on resinous bodies, was supposed to be a cheap and appropriate menstruum, and was tried, but found to be entirely inapplicable, as its solvent action was very slow, hardly altering the shape of the particles or fragments. Chloroform was next used with entire success; it rapidly broke down the gum-resin, dissolving all its oily and resinous matter and leaving the gum as a flocculent powder. The proportion tried was two parts, by weight, to one of the resins, which were operated on separately to ascertain the relative solvency in the menstruum, and they were found equally affected by it.

Ether was then tried and found to greatly exceed alcohol in its ability quickly to dissolve out the resinous matter from the gum-resins, but was required in larger proportion than chloroform. Brandes found two resins in *assafetida*, one of which, existing in small proportion, was insoluble in ether and tasteless, and although the residue left by ether is more bulky than that of chloroform, its much lower cost is greatly in its favor as a menstruum. The great volatility of both these liquids enables the evaporation to be spontaneous, if operating in small quantities, or if the liquids are to be recovered by distillation permits of its being done by a water bath, without injuriously volatilizing the essential oils.

But the *assafetida* plaster frequently met with differs from that of the U. S. Pharmacopœia, by containing the gummy as well as resinous part of the drug, apparently being made by liquifying the *assafetida* by a hydro-alcoholic menstruum and straining out any gross impurities, and then concentrating to a thick consistence before incorporating it with the plaster and wax. Such plaster, when melted with the plaster spatula, is apt to coagulate or separate, owing to the infusibility of the gummy particles.

In view of these results, the following modification of the official formula is offered for acceptance:

Take of *Assafetida*,

Lead-plaster, of each, twelve ounces.

Galbanum,

Yellow-wax, each, six ounces.

Ether, three pints.

Alcohol, a pint.

Thoroughly bruise the gum-resins in a mortar, put them in a suitable bottle, pour on the ether, and agitate frequently until the oleo-resinous portion is dissolved and a fawn-colored pulverulent residue remains as a sediment. Having placed a close cotton flannel or lint filter in a suitable funnel, empty the contents of the bottle in it and cover it closely. As the ethereal liquid gradually disappears, pour on the alcohol, and when it has ceased to pass, evaporate or distil the filtered liquid with a gentle heat until it acquires the consistence of honey and has lost an ethereal odor. Then, having melted the lead-plaster and wax at a moderate temperature, add the oleo-resins and stir constantly until cooled. Thus prepared, assafetida plaster has a fawn color when recent, which darkens by age and exposure; it has a decided odor of both drugs, and is efficient as a topical anti-spasmodic. The well known change of color or reddening which the principal resin of assafetida undergoes by contact with the atmosphere, soon becomes apparent in the evaporated resinous extract from the gum-resins, and it is desirable not to expose the mixture longer than is needful to accomplish the evaporation of the ether and alcohol.

Philadelphia, September, 1860.

ON THE PRODUCTION OF ATROPIA FROM AMERICAN GROWN BELLADONNA ROOT.

BY WILLIAM PROCTER, JR. OF PHILADELPHIA.

At the Annual Meeting of the American Pharmaceutical Association, at Boston, September, 1859, I accepted the following question.

“The *Atropa belladonna* is largely grown at New Lebanon, (New York,) for the preparation of the official extract. Can the root of the plant as grown there, be advantageously employed as a source of atropia?”

Through the kindness of Mr. Henry A. Tilden, of New Lebanon, several pounds of belladonna roots were collected in October last, and carefully dried after being transversely sliced in the manner of columbo root. These roots had a light ashen yellow

color, and an odor analogous to that of stramonium roots, which in fact they in several respects resemble. The drug fairly represented the plant as produced in that locality, and was reduced to powder by grinding.

10,000 grains of the powdered roots was moistened with half a pint of alcohol of 85 per cent. packed firmly in a large glass funnel, suitably arranged for percolation, and covered with a disc of filtering paper. Alcohol of the same strength was now poured on from time to time, until ten pints of liquid had very slowly passed. The first six pints of liquor was kept separate from the last runnings. The tinctures were set aside (the weather being cool,) until a convenient season. In about a week the stronger liquid commenced to deposit a crystalline substance on the inside of the bottle, which at the end of two weeks apparently ceased to increase in bulk. The liquid was decanted, the crystals detached from the sides of the vessel, washed with alcohol, and when dried weighed 112 grains. Examined with a lens, the crystals were found to be a derivative of the oblique rhombic prism, and in fact to resemble cane sugar. They were soluble in water, had a sweetish taste, were colorless and brilliant, were charred by concentrated sulphuric acid, and when boiled with water containing a minute quantity of tartaric acid, easily reduced the oxide of copper, when Trommer's test for grape sugar was applied, thus leaving no doubt of their saccharine nature.

The alcoholic liquids were now mixed together, and one-fourth set aside. To the remainder, 360 grains of lime, previously hydrated and in powder was added, and the vessel frequently shaken during twelve hours. The tincture from being light colored, became of a brown hue; it was filtered from the precipitate and excess of lime, and diluted sulphuric acid carefully dropped in, with agitation, until the liquid had a slight acid reaction. The precipitate of sulphate of lime and coloring matter was separated by filtration, the alcohol distilled off by aid of a water bath heat, and the syrupy residue treated with ether to remove the fixed oil and resinous matter that it contained. The liquid separated from the ether was gently heated, to remove traces of that substance, and then half an ounce of carbonate of

potassa mixed with two fluid ounces of water was added, shaken, allowed to stand for 24 hours, and filtered to separate the precipitate. This was washed with a little cold water, dried, and weighed only three grains. It appeared quite evident that either atropia existed in but small quantity, or that the precipitant used was not a proper one. Thus far, except in the ethereal treatment, the process is that of Mein.

Assuming that the atropia was yet held in solution, the liquid was mixed with three ounces of chloroform, and then solution of potassa added gradually, with frequent agitation, until, on resting, the aqueous supernatant liquid was decidedly alkaline, and of a dark, almost black color. The chloroform was now decanted, and by spontaneous evaporation yielded 24 grains of a fawn-colored crystalline matter, having an alkaline reaction, which in fact was atropia with coloring matter.

Believing that chloroform was the best agent for isolating the atropia, the remaining fourth of the original liquid was evaporated to three fluid ounces, diluted with its bulk of water, and filtered to separate oily and resinous matter. Half a fluid ounce of chloroform, followed by the same bulk of liquor potassæ, was added and well shaken for several minutes, and the chloroform decanted and allowed to evaporate spontaneously. The product was a greenish, amorphous, wax-like matter, possessing an alkaline reaction and weighing 18 grains. This consisted of atropia and oleoresinous matter extracted by the chloroform. It was treated with half an ounce of water containing 20 drops of diluted sulphuric acid, which was not sufficient to saturate the atropia, and ten drops more were added, the liquid filtered to separate the insoluble matter, and liquor ammonia dropped in till it ceased to produce a precipitate. The latter was a bulky hydrate of a light color; its exact quantity was not ascertained, but probably amounted to 10 grains.

The ethereal washings of the first liquid on evaporation yielded a fixed oil, of a greenish brown color, which was partially crystalline; and also a small portion of resinous matter. These were set aside.

In reviewing the last experiment, the disadvantage of treating

the crude liquid with chloroform before the separation of the oily matter was quite apparent, and taking advantage of the fact that sulphate of atropia is insoluble in chloroform, I determined to modify the process by substituting chloroform for ether, as a means of removing the fixed oil, &c., which greatly facilitates the process, and affords the best and easiest process for obtaining this alkaloid that has been offered, which is as follows :

Take of Belladonna root, in fine powder, 10,000 grains.

Lime, 480 grains,

Diluted sulphuric acid,

Chloroform,

Alcohol, each a sufficient quantity.

Moisten the powder with half a pint of alcohol, pack it firmly in a glass funnel, and pour on alcohol until a gallon of liquid has slowly passed. The lime having been slaked to powder by the addition of water, is added to the liquor and shaken at intervals for 24 hours. The alkaline reaction of the liquid is now removed by adding diluted sulphuric acid in slight excess, then filtered, and evaporated to three fluid ounces. After the evaporation the fixed oil separates on the surface as a crystalline stratum. The syrupy liquid was mixed with four ounces of water, thrown on a wetted filter, and sufficient water added afterwards to make the filtrate measure half a pint. This liquid, which had an amber color, a strong, disagreeable odor, and bitter acid taste, was agitated thoroughly with a fluid ounce of chloroform, and the latter decanted. A fluid ounce and a half of chloroform was again added, followed by repeated portions of liquor potassæ of half a fluid ounce each, agitating well after each addition until the aqueous liquid on standing has a decided alkaline reaction and ceases to be clouded by the potassa. The chloroform is now decanted, and by spontaneous evaporation yields a crystalline fawn-colored residue of impure atropia, weighing 36 grains. By agitation with an additional portion of chloroform, three grains more of impure atropia is obtained. The atropia in this condition is dissolved in alcohol, shaken with half a drachm of purified animal charcoal, and after filtration mixed with a few drops of water and allowed to evaporate and crystallize.

The yield of purified atropia does not exceed 30 grains, or less than one-third of one per cent. of the root treated.

By evaporating the chloroform washings the fixed oil is obtained. This and the previous portion obtained by ether was re-dissolved in ether, filtered and evaporated by a gentle heat. The product was fluid at summer heat, had a dark brown color and disagreeable odor, and is at least partially the cause of the odor of the root.

Philadelphia, June, 1860.

ON THE PRODUCTION OF ALCOHOL IN THE UNITED STATES.

BY FREDERICK STEARNS, OF DETROIT.

In regard to the questions referred to me upon Alcohol I have the following statement to make:

The points in the query relating to the *production* of alcohol, and the *statistics* of its commercial relations, are evidently the most important, the others being already exhausted in reliable chemical treatises; hence I directed my inquiries to the former. I found the construction of a complete table of statistical information was, for various reasons, beyond my power, and that to await the results gathered by the decennial U. S. census (now recently taken) would give to statistical tables greater accuracy. It is evident the region of the Ohio River valley contributes the largest share of whisky and its derivatives that is produced within the limits of the United States; and the following, part fact and part estimate, copied from a letter of a reliable correspondent, is all I have to offer this year in relation to the matter.

The amount of whisky which finds a market annually in Cincinnati is about five hundred thousand barrels, worth on an average, one year with another, five millions of dollars. This amount is derived from Ohio and the States bordering the Ohio River. An estimate of the total U. S. product is one million five hundred thousand barrels. This estimate is based upon its average production in several States and not upon the receipts of the large eastern Markets. The present annual manufacture of alcohol in

Cincinnati will average forty-six thousand barrels, worth one million eight hundred thousand dollars, estimated to be about one-fourth the whole amount made in the United States. This estimate makes the total average product of the U. S. to be one hundred and eighty-four thousand barrels, worth over seven millions of dollars. This estimate includes alcohol made for commercial purposes, for the manufacture of burning-fluid, and that purified for making domestic brandy and other liquors, and for exportation for the same purposes.

In Cincinnati the manufacture of alcohol has fallen off one-half since 1858, when it reached its maximum. This is partly owing to the falling off in the foreign demand, which was large in 1858, but owing to a protective tariff it has been nothing since.

Whisky is produced from corn, rye, barley, middlings, (refuse from wheat in making flour,) and oats, the proportion being about eighty per cent. of corn, the remaining twenty per cent. equally divided between the others.

About one million one hundred and twenty thousand dollars capital is invested in the stills, fixtures and business of the whisky distillers, the product of which finds market in Cincinnati.

In the manufacture of alcohol the capital invested in Cincinnati is three hundred and fifty thousand dollars.

The most notable impurity is the grain or fusel oil.

It has been asked me whether, for the purpose of manufacturing alcohol for burning fluid of high hydrometer-proof and yet comparatively low alcoholic strength, it could not by distillation in the presence of a small proportion of sulphuric acid, be contaminated with enough ether to heighten its proof without showing by hydrometer its real alcoholic strength. This query I cannot answer, but think it one worthy of investigation.

It is estimated that until the introduction of illuminating coal-oils, by far the largest proportion of the common alcohol produced was employed in the manufacture of burning fluid. Since, however, the largest proportion is employed under the name of pure and proof-spirit in the manufacture of domestic brandy, gin, etc.

Detroit, September 10th, 1860.

ON THE PREPARATION AND CHARACTERISTICS OF
ALÖIN.

BY EDWARD PARRISH.

In answer to the query submitted to me last year, I proceed to report the result of some experiments in the preparation of Alöin.

The previously published process of Groves, leaves little to desire on the score of simplicity, and availability for small or large quantities; the only difficulty it presents is the drying of the crystallized alöin, which displays a constant tendency when moist, and particularly under the influence of even slightly elevated temperatures, to pass into an amorphous, extractive-like mass.

The use of a vacuum pan, as practised by T. & H. Smith, of Edinburgh, is not available in the small operations of the pharmacist, and I have resorted, with tolerable success, to an expedient which is detailed below in connection with the process of Grove, as somewhat modified and rendered more explicit.

I have only experimented with socotrine aloes, which is now abundant and easily procurable, and have obtained the product in a state of considerable purity, though from the mode of conducting the last part of the process it is not in large crystals, but rather in the form of a crystalline powder.

Take of aloes, a convenient quantity, triturate in a mortar with boiling water until it is dissolved, using the smallest quantity of water practicable, acidulate with muriatic acid in the proportion of one part to six or eight of the infusion, after a few hours, strain through linen or cotton cloth, and set aside in a cool place to crystallize. After a fortnight, a mass of crystals will be found, covering the bottom and sides of the vessel. These are now to be removed, separating them as far as possible from any amorphous matter which may accompany them, washed with cold water, dissolved in a minimum quantity of boiling water, and again set aside to crystallize.

To dry these crystals subject them to gentle pressure in bibulous paper, then transfer to a mortar and triturate loosely, first with a mixture of one part of ether to three of alcohol, then with three parts

of ether to one of alcohol, using a minimum of these liquids and the shortest contact practicable to absorb and remove all the water; then wrap them in bibulous paper until thoroughly dry.

The alcohol dissolves a small portion of the albin which may be crystallized out from it if in quantity sufficient to make it desirable, and by effectually removing the water from contact with the albin it facilitates its drying without its being discolored or losing its crystalline form.

Albin is in crystals of a sulphur yellow color, bitter taste and no odor, soluble in 60 parts of boiling water, very soluble in alcohol, muriatic and acetic acids, caustic potassa and ammonia, giving a brown solution with alkalies. It is insoluble in ether, benzine, oil of turpentine and chloroform, although softened by these into a mass; heated in olive oil it fuses unchanged. By nitric acid it is converted into chrysammic acid and dissolves into a red solution. It readily fuses by heat, darkens in color, decomposes and passes into a black voluminous charcoal. It is neither acid nor alkaline, but with strong solution of subacetate of lead is precipitated in combination with the oxide of that metal.

Albin is a mild, but certain, and very agreeable cathartic. Dose 1 to 3 grains.

PARAFFIN—ITS SUBSTITUTION FOR WAX IN CERATES.

BY CHARLES T. CARNEY, OF BOSTON.

In reply to No. 13 on this subject, I submit the following remarks, which are necessarily very brief, not having had the opportunity of testing the question by actual experiment as to whether any therapeutic objections exist as to its use:—

I have made several experiments to test the availability of paraffin as a substitute for wax and also spermaceti in cerates, and am led to form the opinion that it is, to a certain degree, valuable as a substitute. The temperature at which paraffin solidifies after being melted, is so much greater than some other substances used in the manufacture of cerates and ointments, that

this substance cannot be substituted in all cases for *both* wax and spermaceti, when those two are combined in ointments or cerates, but in many of these preparations that are comparatively solid at ordinary temperatures, my experiments would lead me to form the opinion that it may be used very conveniently and to advantage.

I submit herewith a sample of the *Officinal Ung. Simplex*, with an entire substitution of paraffin for white wax.

It will be seen that it forms quite a fair looking ointment.

For preparations of this kind, or those ointments that are colored by reason of their peculiar constituents, I should judge paraffin could readily take the place of wax.

I also submit specimens of *Ung. Aquæ Rosæ* made with certain amounts of paraffin in the place of wax or spermaceti. All these specimens differ from the officinal formula in containing glycerin in place of one half the quantity ordered of *Aqua Rosæ*; but a formula of precise composition accompanies each specimen, as to other ingredients.

SPECIMEN No. 1.—Contains paraffin in place of wax and spermaceti.

SPECIMEN No. 2.—Contains paraffin in place of spermaceti, with regular amount of wax.

SPECIMEN No. 3.—Contains an increased amount of paraffin and decreased amount of Oil of Almonds.

SPECIMEN No. 4.—Contains a large increase of paraffin, and Oil of Almonds decreased one half.

It will be seen that No. 1 forms a fair ointment; No. 2, in which white wax forms a part, is perhaps rather better; No. 3, containing a large proportion of paraffin, with the regular amount of white wax, gives a very fair ointment, and I do not think the paraffin would be noticed, or be objected to, even when present in this quantity; an ointment made in this way would be, in my judgment, very permanent, and keep a long time without becoming "rancid" or "ropy." No. 4 is made with a still larger amount of paraffin, and here the peculiarity of the cooling point is an objection.

You will notice the ointment is "granulated," and cannot be considered a good pharmaceutical preparation.

I have noticed that the presence of a small amount of white wax tends to make the paraffin much more "tractable," if such an expression is applicable; it seems to destroy in a measure the tendency to "granulate," and renders the paraffin much more tenacious.

In conclusion, I would offer as my opinion that paraffin may be used as a substitute for either wax or spermaceti in cerates, and that in an ointment containing a certain amount of water it is better to have a portion of wax retained as rendering the paraffin more available. As to the therapeutic objections to paraffin I can only say, that judging from the peculiar characteristics of this substance, I should suppose there would be no reason for any whatever.

ON CARRAGEEN.

BY AUGUSTUS P. MELZAR, OF BOSTON.

"To what extent is Carrageen collected on the coast of New England for the supply of Commerce?"

The red-colored algæ being abundant in the deeper and darker parts of the sea, the characteristics of the coast of New England naturally lead one to suppose that it may be found in this vicinity in great quantities and of the purest quality.

The Carrageen, or "Irish Moss," is gathered to a considerable extent in Massachusetts, but not to any amount in other parts of New England.

Along the south shore of Massachusetts, bordering upon the bay, the moss-gatherers during four months of the year collect the moss from the rocks, and from the beach, (where it is often landed after being torn from the rocks by the action of the sea,) and spread it high up on the beach to dry and bleach in the sun, thus preparing it for the market.

In the town of Scituate, Plymouth county, this business is carried on by natives of Ireland, who are located upon the cliffs, at the base of which is a bold rocky beach, where the moss is gathered in greater quantity than in any other part of New England.

It is estimated that in the town of Scituate, from three to four

thousand barrels are yearly sent to the Boston and New York markets; from Cohasset and other towns in the immediate vicinity, one or two thousand barrels more; the total number of pounds being estimated at about five hundred thousand.

While the Carrageen is no doubt of the first quality, its market value depends upon the care with which it is prepared; thus its price varies according to the uses for which it is intended and by whom prepared.

The collecting of "moss" in New England for commercial purposes is of comparatively recent date, it being obtained almost wholly by Irish emigrants, who, during a period of fifteen or twenty years, have landed upon our shores to pursue an occupation familiar to them in their native island.

ON THE PRODUCTION OF CONIUM SEEDS IN THE UNITED STATES.

BY HENRY F. FISH, OF WATERBURY, CONN.

To the question, "Can the seeds of *Conium maculatum* be collected in quantity sufficient for the preparation of Coniïn, (or Conia,) as an article of commerce?" I reply, that on the first day of October, 1859, I addressed printed circulars, embodying a series of inquiries, to a large number of individuals in my own, as well as in other States, and that, to them, I have received only one reply of any practical value.

The questions and their answers are now presented:—

Question 1st, Does *Conium maculatum* grow in your locality? Answer—We raise it.

Question 2d, In what quantity? Answer—1200 to 2000 pounds to the acre.

Question 3d, Is any use made of it? Answer—A large amount of Extract is made.

Question 4th, How many pounds of ripe seeds can be obtained? Answer—100 pounds to the acre.

Question 5th, At what probable cost by pound? Answer—From 25 to 33 cents.

Question 6th, Can you engage in their collection? Answer—If any demand was made, we would do so.

Answers returned by Charles T. Carney, of Boston ; information communicated by S. T. Atherton, South Groton, Middlesex county, Massachusetts.

I may add, that *Conium maculatum* grows wild, abundantly and luxuriantly, in many towns in the State of Connecticut ; in some places so thick, in patches, as to be mown down with a scythe. Judging from the fact that it is regarded as a pest rather than otherwise, on account of its abundance, its poisonous properties and its tenacity of life, I have no reasonable doubt but that many hundreds of pounds of ripe seeds may be procured this fall, within a radius of thirty miles of my own locality, and that any demand arising for it would bring into market within a twelve-month, an abundant supply.

I will pursue the subject farther if deemed necessary.

WHAT ARE THE CLAIMS OF GUAIAIC TO BE CONSIDERED A BALSAM.

BY WILLIAM PROCTER, JR., OF PHILADELPHIA.

The resinous substance derived from the Guaiacum Officinale of the West Indies—by natural exudation and incision, by heating logs of the wood previously pierced longitudinally with a hole, and by boiling the chips of the heart-wood in water saturated with salt, and which is known as “Guaiac,”—is so remarkable as to have claimed much attention from chemists and from writers on the *Materia Medica*. Although as a whole, differing materially from ordinary resins ; by its power of coloring various bodies by contact with them, and by its affording oxalic acid by the action of nitric acid ; yet it has usually been classed with these bodies.

At page 147, of the Proceedings of the Pharmaceutical Association, for 1858, the writer claims for this drug a place among the “Balsams.” Dr. Dunglison (*Med. Dict.*) describes the balsams as a class of “natural vegetable substances, concrete or liquid, but very odorous, bitter and piquant—composed of resins, benzoic acid, and sometimes an essential oil—which allow benzoic acid to be disengaged by the action of heat,” etc., and limits its application to five substances, viz. :—Balsam of Peru, Balsam of

Tolu, Benzoin, Storax, and Liquid Storax. It has been proved, however, that balsam of Peru contains cinnamic, and not benzoic acid; and, further, that the exudation from Liquidambar Styraciflua of this country, also contains cinnamic acid, thus extending the definition to exudations containing the latter acid, which has a chemical relationship with the benzoic acid.

M. Thierry (Jour. de Pharm.) has obtained from guaiacum wood, and from guaiac by decoction and sublimation, a crystalline acid, which he considers to be peculiar and analogous to cinnamic acid, but which Jahn calls benzoic acid. If the last chemist be correct, it is sufficient to settle the question of the balsamic nature of guaiac. But Thierry's acid is alleged to have the formula C^{12}, H^8, O^6 , and to be more soluble in water.

When guaiac is subjected carefully to dry distillation, a volatile oily liquid is obtained with other products. This is hyduret of guaiacyl, $C^{14}, H^7, O^4 + H$, possessing acid properties like salicylous acid, and differs from it in composition by two eq. of hydrogen more, and from hyduret of benzyl by the elements of two equivalents of water more, showing a close relationship with benzoic acid, which is equal in composition to hyduret of guaiacyl *minus* two equivalents of hydrogen.

Recently, Prof. Hlasiwetz has succeeded in obtaining the most abundant resinous ingredient of guaiac, in crystals which do not possess the property of coloring blue with gluten, chlorine, etc., showing that this property is due to some special ingredient of the drug.

Much yet remains to be learned of the nature of guaiac, and especially it is to be desired that the natural exudation in tears and rounded masses should be examined, as not having been subjected to the altering action of heat or boiling water, to see whether its proximate composition does not differ from the other varieties, as regards the volatile acid.

In view of these facts, viz. :—the presence of a volatile crystalline acid, analogous to the benzoic, and its yielding by distillation an oily hyduret of guaiacyl, it seems quite fair to place guaiac among the balsams; and to extend the signification of that term to include all exudations which contain a crystallizable

volatile acid, related chemically to the benzoic acid, associated with aromatic and resinous matter.

Philadelphia, August, 1860.

ON THE DEPRECIATION OF SMYRNA OPIUM IN MEDICINAL VALUE.

BY P. WENDOVER BEDFORD, OF NEW YORK.

"Has the average morphia strength of commercial Opium from Smyrna depreciated from its earlier value? and if so, to what extent?"

In answer to the above question the writer would briefly say, that since the last meeting he has made a number of examinations of opium in reference to the inquiry, and believes that opium, as now found in our market, does not yield the percentage of morphia it formerly did.

The opium selected for examination was the best powdered opium from our leading drug warehouses, with one exception, which was made directly from the opium in lump.

The reason of selecting the powder is, that it is a fair average of a quantity, while each lump would give a different result. In drying and powdering opium it loses from 17 to 21 or 22 per cent. The first sample I dried and powdered lost but 12 per cent., but the pieces were selected because they were hard and dry. No analysis was made of this specimen.

The first sample experimented with weighed one pound, and in drying and powdering lost 21.13 per cent. On further drying a portion at 212° it lost 4 per cent. more. This was a fine specimen of Smyrna opium. The experience of Dr. E. R. Squibb (as recorded in the American Journal of Pharmacy, vol. xxxii., p. 117,) in drying and powdering opium is, that it will vary from 18 to 11 per cent.

A friend in the wholesale trade has furnished me a statement in which the loss on four parcels of about 30 lbs. each was as follows:

No. 1,	loss	22.12	per cent.
No. 2,	"	17.	"
No. 3,	"	19.	"
No. 4,	"	21.5	"

The average being 19.9 per cent.

The fair average would probably be 20 per cent. and on this my calculations are based, with the exception of the first specimen, which is calculated from its actual loss, 21·18 per cent.

			<i>Percentage of Morphia.</i>	
			<i>In powdered Opium.</i>	<i>In Commercial Opium.</i>
No. 1.	Opium dried and powdered,		11·2	9·24
No. 2.	Sample of powdered Opium,		10·9	9·08
No. 3.	“ “ “		9·09	8·55
No. 4.	“ “ “		7·06	6·33

The experiments of Dr. Squibb, (*Am. Jour. Pharm.*, vol. xxxii. p. 117,) show much greater difference in result, the lowest percentage being 5·15 per cent., and the highest 11·15 per cent.

Dr. Staples, in his article on Opium and some of its Constituents, (*Am. Jour. Pharm.*, vol. i. p. 16,) obtained as high as 13·8 per cent. of morphia slightly colored.

The U. S. Pharmacopœia says nothing about the percentage yield of its process, but on page 564 of the U. S. Dispensatory, 11th edition, is found: “Good opium should yield ten or twelve per cent. of the impure morphia precipitated from the infusion by ammonia with alcohol, according to the process of the U. S. Pharmacopœia,” and on page 1147, same work, “the proportion of morphia which Turkey opium is capable of affording varies from nine to fourteen per cent.”

Of the various processes recommended, none is as simple and reliable as that of the U. S. Pharmacopœia, which is the process of Dr. Staples, somewhat changed. In manufacturing on the large scale this is modified so as to avoid the use of alcohol.

“Has opium depreciated in its morphia strength?”

The writer thinks it has. This depreciation is partly due, no doubt, to the primitive mode of cultivating the soil. I am not aware whether they understand the theory of a succession of crops, or whether opium exhausts the soil to any extent; but may not this be one cause?

Another cause is probably carelessness in its preparation for market; and worse than all, intentional addition of inert matter.

In conversation with a pharmacist, some time since, he told me that in preparing laudanum he always chose nice pieces of soft opium in preference to dry, as it contained more morphia.

I had intended investigating that statement, but the short period prevented my doing so.

"To what extent has opium depreciated in its morphia strength?"

To this question the writer is unable to give a direct answer. He would allude to the varying result of the experiments named, as well as the analysis of Dr. Squibb, as showing a wide range in the percentage from samples of the same commercial quality of Smyrna opium.

A manufacturer of this city informs me that 10 per cent. of the sulphate of morphia is a good result, and above the average of last year's crop, which was not over 9.5 per cent., equivalent to 7.59 per cent. of the alkaloid.

Were the quantity of yield definitely laid down, it would be quite easy to say what the present depreciation is; but as that is not named, it would be impossible to give any definite answer.

When opium is itself so variable in its strength, (for it depends mostly on the morphia alone,) it follows as a necessity that all its preparations must be somewhat uncertain in their action; and while many pharmacutists will continue to make *Tinctura Opii* from crude opium, there will be little uniformity in its strength.

The true method of administering opium to obtain definite results, would seem to be either to use the salts of morphia, or better, by a preparation of opium, to be of definite morphia strength, like the *Liquor Opii Compositus* of Dr. Squibb, (see *Am. Journal Pharm.* vol. xxxii. p. 120,) which preparation, or a modification of which, it is to be hoped will find a place in the forthcoming *Pharmacopœia*.

New York, September, 1860.

ON HOPS AND LUPULIN.

BY CHARLES A. TUFTS, OF DOVER, N. H.

"It has been asserted that hops that have been used in obtaining the lupulin of commerce are afterwards sold as hops. Is the assertion true, and if so, to what extent is it carried on, and where; and what are the means of detecting the fraud?"

I have not been able to obtain such definite information as could wish, in regard to this subject, and I do not think it would be easy to do so. So far as I can ascertain, it is not the practice with the hop growers and sellers in New England, and I cannot find with certainty that it is practised elsewhere.

I find there is an impression that it may be done, but I cannot learn where it is done, or by whom the fraud is committed, I have conversed with different hop-growers and dealers, and they have disclaimed all knowledge personally of such practice.

Hops, after being picked, are kiln-dried on frames, generally now by steam heat. The green hops are placed about a foot in thickness on the frames, and are often stirred to make them dry evenly. The lupulin was formerly wasted, but now most curers of hops suspend cloth under the frames, and save the lupulin which falls through.

In drying a bale of two hundred pounds weight, from one to two pounds of lupulin can be collected; to obtain more than this, it would be necessary to pass the hops a second time through the kiln. In this way four to five pounds more could be obtained. The hops would be greatly injured by this process, not only by being deprived of the lupulin, or, as hop-growers term it, "the condition," but they would be very brittle, and would be so broken as to be unsaleable. One hop-grower told me, he did not believe this was practised, as he thought the amount of lupulin would not compensate for the labor and expense of this second drying.

There is a difference in hops raised by the same grower, for this reason. As the hops are dried, they are placed in a pile in the store or curing room, till all the crop has been dried: they remain here for several weeks, as the curers say, to toughen, they are then pressed and bagged.

The hops at the bottom of the heap will thus have much more lupulin than those at the top, and be stronger and more valuable; considerable lupulin will be collected from the floor of the curing room, and the lupulin thus collected will be of the best quality.

I have heard that quantities of lupulin are separated specially for the supply of commerce, by threshing the hops after they are a year old, and then sifting the powder from the broken strobiles.

The hops thus treated are said to be put up in bags, and

then sent to auction, and sold for what they will bring, without any explanation as to their inferiority. It may be these threshed hops are again damped and pressed into pound or half pound papers.

The best way of detecting the fraud would be to remove the contents of a package or bale, in small quantities; if there was little or no lupulin left, and the strobiles were much broken, it would show they had been exposed to the above treatment.

To determine the quality of good hops, not only the color should be examined, but the powder should be rubbed between the fingers; if the lupuline is abundant and feels clammy and unctuous, and is not too dark colored, the hops may be pronounced of good quality.

PATENTS IN THEIR RELATION TO PHARMACY.

BY EDWARD PARRISH.

The practice of all civilized nations recognizes the utility of securing to the inventor the profits arising from his ingenuity and industry, by imposing legal restrictions upon its unauthorized use by others. So universally is this the case, that the moral or ethical view of the subject is seldom spoken of or discussed. The product of a man's mind is presumed to be as much his own as the product of his hands; his ideas as much his property as the results of his labor, and no one seems to dispute it. And yet there is a certain point of view from which the fact of thinking a happy thought and working out a good result, appear widely different. In nothing else has a man so sure a title as in the product of his own industry; but whence came those flashes across his mind which he calls ideas? Are any of these purely his own? Has he not inhaled the prevailing thoughts of his age and of past ages (which are all embodied in the present) as he breathes the atmosphere around him? Who can tell from whence any great inventor has derived the initial idea of his invention, or what inventor can even answer this to himself?

But on the other hand, if thought be mental labor, why are not its results just as much property as he results of manual labor?

These considerations have engaged my attention in endeavoring to determine the right and wrong of patents in medicine. I confess they offered me no satisfactory starting point for a discussion of the question; it seems to resolve itself into one of humanity and expediency, and here we have, perhaps, firmer ground to tread upon.

It is alleged that the direct effect of the patent laws is to stimulate invention; that men direct their mental energies in this direction, entirely from the hope of profit, and the public are therefore benefitted by them, though there may be an apparent monopoly in each case of their operation; granting this, the question becomes a simple one as to the degree in which society is likely to be benefitted by their application to any particular pursuit.

In the matter of medicines, the profession to whom the healing art is mainly intrusted, is pretty unanimous in maintaining that no interest of an inventor should stand in the way of the free and unrestricted use of every improvement that the ingenuity of man may devise either in the means of cure, or the modes of applying them. It is the boast of the liberal profession of medicine, that what ever is known by one as valuable or useful for alleviating pain or restoring the diseased to health, may be freely known to all and used without restriction.

That this is expedient in the case of physicians is scarcely doubted by any thoughtful person; it certainly takes away one motive for the application of ingenuity in the difficult art of healing, but we can not ignore the superior force of the higher motives which influence the conscientious practitioner. In no other profession have we so noble an example of liberality in communicating and applying the results of experience and the deductions of science to the relief of suffering, and none have so rich a reward in the esteem and gratitude of the public. The medical profession is, however, very different from ours. Manufacturing and merchandizing are our chief pursuits, our motive is more immediately pecuniary, though the liberalizing influences of science, and especially our connection with the relief of those maladies which are the common lot of our race, modify the motives which pertain to ordinary business, and lead us into

affiliation with the liberal professions. Competition which is the great moving spring of business is partially shut out of the profession of medicine; physicians professedly ignore it entirely, yet we all know that it operates practically with more or less force upon them, and we see its effects in our daily intercourse with the public, however, they may seek to conceal it from their professional brethren.

With us, however, there is no concealment of competition. We are all trying for business; competing openly, and I hope for the most part honorably, with our neighbors, and it need not affect our friendly relations, though it does somewhat modify our course in regard to the subject we are discussing. To us a new invention inevitably presents itself in a business aspect, while to the true physician its humanitarian bearings are most prominent, and this, it seems to me, puts us in different positions in regard to the question of patents.

Perhaps I here do injustice to our profession, which presents many conspicuous instances of the most liberal and professional spirit; its Colleges, its journals, and this Association, as far as they go, are palpable testimonials to its comparative freedom from niggardly motives, from the hoarding of ideas and experiences which from their very nature ought to belong the common stock; still I rely upon the discernment of my hearers to recognize the difference to which I refer as inherent in the nature of the two pursuits,—the one strictly a liberal profession,—the other a combined profession and trade. It is true, we do not sanction concealment in regard to the composition of medicines we may originate, but we do not compel a disclosure of all the results of our experience in its preparation. We do not conceal the knowledge we possess of the best means of judging of the quality of drugs, but we do not necessarily tell our competitors where best to obtain them or how to render them most attractive to customers.

Inventions of value, present the strongest cases for the exercise of concealment; unless some means are provided for the protection of the inventor in the legitimate fruit of his ingenuity; and concealment is the worse evil to society in the case. On the other hand, in case of inventions of real and permanent value, which are the only ones of much utility to the inventors, the public must be the losers just so far as free and open competition is shut out.

The opposite extremes which prudence would seem to indicate we should avoid, are perhaps best provided against by the course which I understand the professional sentiment now allows among the more respectable pharmacutists. As a profession, we recognize no patenting of medicines, and the U. S. Commissioners, at the Patent Office, rarely allow this class of patents when applied for; and in the few instances in which they grant them, merely patent "the compositions of matter," never patenting them as specifics for any particular diseases, nor as remedies possessed of any special therapeutic properties. In fact, so opposed is the system of patenting to the interests of those who prepare and vend proprietary medicines, that the chief applications come from western practitioners for "blood purifiers," "female aids" and other abominations, few of which possess the requisite originality to claim a patent, and from none of which would the public gain anything, in the event of their being fostered into life by the aid of our laws. Some of the countries of Europe refuse patents for food or medicine, and I believe the number issued in any country to be small. The number of patents issued for medicines in this country in a year, does not exceed six or eight.

The idea that a medicine is patentable at all, is liable to one objection which I may here state. The medical colleges, holding charters from the several States, are understood to grant in their diplomas the right to prescribe and compound all the "compositions of matter" applicable to the cure of disease. Has the U. S. government a legal right to contravene or limit these chartered rights of physicians by declaring that any particular combination shall not be prescribed or administered except by a certain patentee?

The views advanced in relation to patenting medicines does not apply equally to processes or to forms of apparatus used primarily or incidentally in their preparation. A patent seems here to be legitimate and of service as a stimulus to invention and a reward or compensation for the investment of time and money in perfecting it.

Without this stimulus, few men would employ themselves in perfecting those processes upon the improvement of which the progress of pharmacy, as well as of kindred arts so entirely depends, and the public would be the losers.

ON POWDERED CAMPHOR AS A PHARMACEUTICAL PREPARATION.

BY HENRY F. FISH, OF WATERBURY, CONN.

To the question, "*What is the most eligible method of keeping camphor, in the form of powder,*" I am prepared to give such an answer only as my own experience prompts; but to another question, "*What is the best method of obtaining Camphor in the form of powder,*" I can give a direct answer.

Take of Refined Camphor, $\bar{3}\text{xvj}$. Troy.

Carbonate of Oxide of Magnesium, $\bar{3}\text{j}$.

Alcohol, sp. gr. .818, Oij.

Water, Ovijj.

Dissolve the camphor in the alcohol. Triturate the magnesia, in a porcelain mortar, with as much water as will enable the mixture to blend freely with the 8 pints of water; agitate the whole in a suitable wide-mouthed bottle until the magnesia is thoroughly diffused; add to this the eight pints of camphor, in a thin, slow stream, constantly stirring the fast-thickening mixture. A dense, white, curdy separate ensues, which gradually condenses and rises to the upper strata of the alcohol and water. This may be collected in a paper filter, where it parts readily with its moisture. The camphor, now in a state of minute division, should not be pressed or much disturbed, but should be suffered to dry gradually; the mass may be cut into small pieces to promote desiccation.

If the process has been skilfully conducted, and the camphor allowed to part with its moisture spontaneously, without compacting itself, it now appears in the form of a light, dry, somewhat spongy mass, yielding to the pressure of the fingers, and capable of being reduced to a fine powder readily and rapidly. I have preserved camphor in this condition, for two years, simply excluding the light; if it is exposed to the light, it gradually sublimes and condenses to a small extent only. All risk of this kind may be entirely obviated by leaving the camphor *rather moist* than dry, when bottled. In dispensing, I have used no other form of camphor for a year or more.

The magnesia should be of that form known in market as *S.S.* The quantity is so minute, being only one grain in 128, as to form no sort of objection, while the diffusion of it in the water prevents, to some extent, the camphor from condensing in desiccation, and becoming very hard and difficult of reduction to powder. The London Pharmaceutical Journal, for July, 1860, has an article on the reduction of camphor to powder, by the addition of cold water, pounding it in a mortar, and sifting.

I have not been able to arrive at any satisfactory results by this method.

ON GARLIC—(*ALLIUM SATIVUM*.)

BY ROBERT P. THOMAS, M. D., OF PHILADELPHIA.

At the last Annual Meeting of the Association, the query whether "the varieties of garlic in use in Philadelphia, are modifications of the same plant, or distinct species," was referred to me for investigation. It may be premised, that we constantly meet in the stores of this city, as well as upon the vegetable stands in the market-houses, with bulbs of garlic, so different from each other in size and general appearance, as to have occasioned much speculation respecting their origin.

With a view of eliciting the practical experience of market-gardeners upon this subject, extensive enquiries have been made of those engaged in the cultivation of garlic, but the information thus obtained is so diverse and conflicting, as to be of little positive value. To the question, Do the varieties of garlic grow in your garden? the answer almost uniformly has been—We only raise one, but there is a great difference in the size of the plants and roots. The general impression among them seems to be that no real difference in species exists, the diversity in size being referable to circumstances,—as the nature of the soil, quantity of manure, &c. A similar diversity, it is said, is witnessed in the growth of all the vegetables cultivated for daily table use.

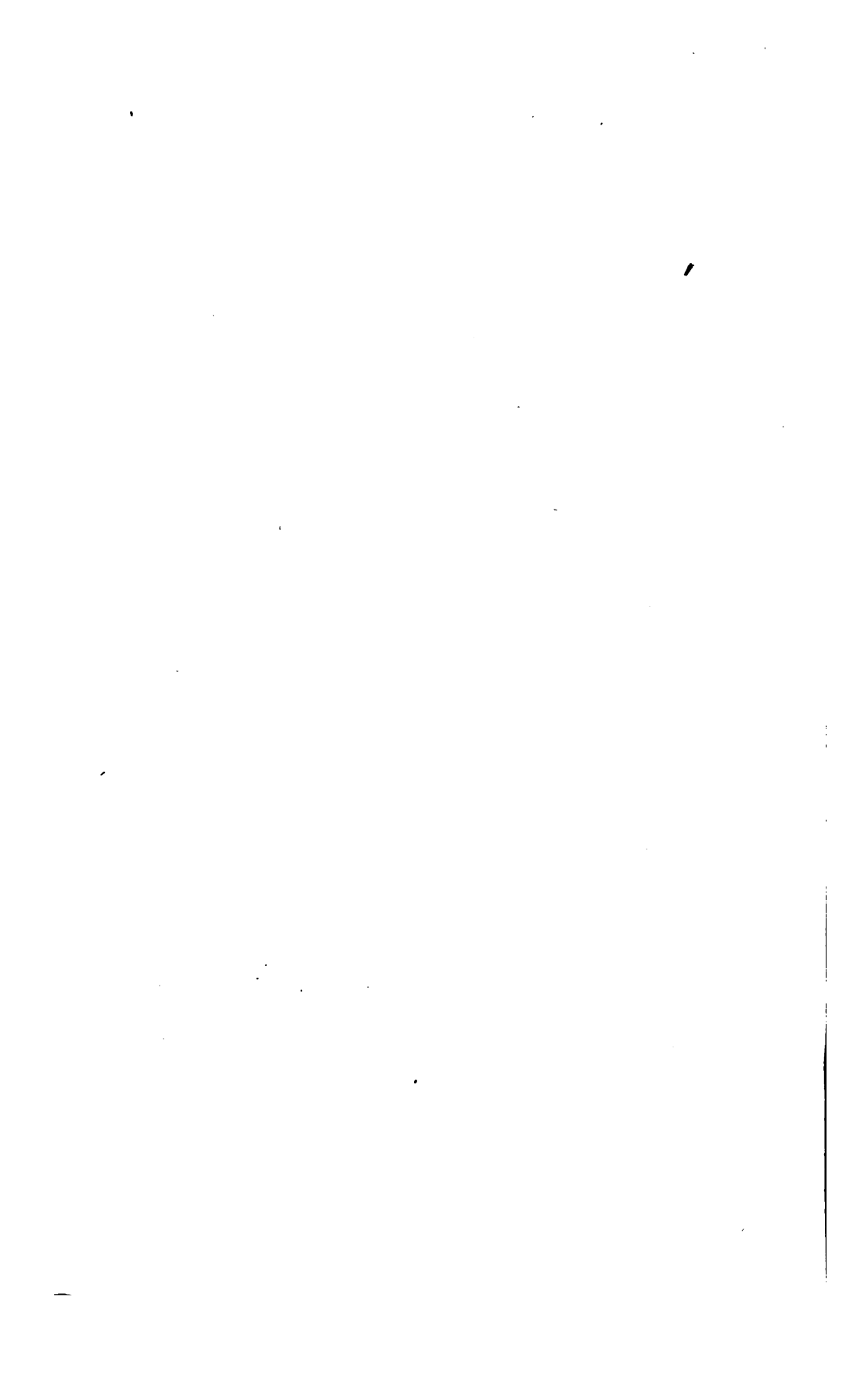
One gardener, somewhat celebrated for her knowledge of horticulture, informed me that the two plants were certainly not identical, as she could readily distinguish them in the growing



Flower, highly magnified.

*Perianth laid open, showing the alternate
triloc. stamens.*

ALLIUM SATIVUM [HYBRID.]



state at a distance of many feet. It being evident that no conclusive evidence could be procured on the subject, I resolved to raise a few plants and thus obtain some tangible proof. Accordingly, four cloves of one of the large bulbs, and a similar number of a small one, were planted in a large garden at considerable distances apart, and all were so marked as to prevent a subsequent confounding of the different plants. Each grew vigorously, but before they had obtained half of their growth, a striking difference between the produce of the respective bulbs was evident to the observer, and a confirmation afforded by the remark quoted above, that the growing plants could be distinguished from each other at a distance of many feet, indeed, I might say, as far as they could be seen. The one presented all the characteristics of the true garlic; the other looked so much like thriving onion-plants, as to be constantly mistaken for them by casual visitors. The close observer, however, noticed that the ventricose stem of the onion was wanting, being replaced by the round solid stem of the garlic. Between the large plants, and the leek (*Allium porrum*), the resemblance was still more apparent. It may be mentioned that the four plants derived from the cloves of the large bulb presented like characters; while the progeny of the small bulbs were also accordant in their peculiarities, but dissimilar to the offspring of the large. The period of inflorescence was not alike in both; the small or true variety was in head ten days or two weeks in advance of the large.

The following description of these varieties, made from recent specimens, is arranged in such a manner as to enable the eye of the reader to recognize the close correspondence in the written histories of two plants, which in their growing state presented such striking differences in size, general appearance, and time of inflorescence.

SMALL OR COMMON GARLIC.

Bulbs, compound, small, consisting of eight to twelve cloves of nearly uniform size, surrounding the stem, and enclosed

LARGE GARLIC.

Bulbs compound, large, some weighing four to six ounces, and measuring two to four inches in diameter. Cloves, four to eight

by common membranous envelopes. Each clove has, also, its own specific covering. The bulbs range from $\frac{3}{4}$ of an inch to $1\frac{1}{4}$ of an inch in diameter.

In both varieties the cloves present a concentric arrangement internally, and a small, vertical canal in the centre.

Stem round, herbaceous, 2 feet—2 feet 6 inches high, $\frac{1}{2}$ — $\frac{1}{2}$ inch in diameter at base, lower third sheathed with leaves.

Leaves, sheathing, linear, lanceolate, 12—15 inches long, $\frac{1}{2}$ — $\frac{3}{4}$ inches broad, nearly flat, though somewhat channeled above, striate, smooth, entire, margins bordered by very fine stiff hairs.

Spathe, ovate, membranaceous, with a long acumination.

Flowering heads umbelliferous; the flowers being intermingled with numerous spathaceous, proliferous bulbs.

Pedicels, pale purple, $\frac{1}{2}$ —1 inch long.

Perianth, pale purple, 6-parted.

Filaments 6, viz., 3 single, and 3 tricuspidate. Anthers incumbent.

in number. Four of them are usually well developed, the remainder are much smaller. Each has its own covering, and all are arranged around the common stem, with common membranous envelopes.

Stem round, herbaceous, 5—6 feet high, one inch in diameter at base, lower third sheathed with leaves.

Leaves, sheathing, linear, 18—24 inches long, $1\frac{1}{2}$ inches broad, midrib prominent below, striate, smooth, entire, margins and midrib clothed with very fine stiff hairs.

Spathe, ovate, membranaceous, with a long acumination.

Flowering heads umbelliferous; the flowers being small and numerous. No bulbs are found in these heads.

Pedicels, pale purple, slender, 1— $1\frac{1}{2}$ inches long.

Perianth, pale purple, 6-parted.

Filaments 6, viz., 3 single, and 3 tricuspidate; the alternate filaments being wide at base, and bearing the anther on the middle filiform segment. The alternate stamens are longer than the perianth.

Ovary, superior; capsule 3-celled.

Style, subulate.

Stigma, simple.

Flowers early in July. Fruit, latter part of August.

Ovary, superior; capsule 3-celled.

Style, subulate.

Stigma, simple.

Flowers late in July. Fruit, in September.

The foregoing comparison of the plants yielding the two kinds of garlic, shows a strict accordance between them on most botanical points. It will be observed, however, that the stem, leaves, and bulb of one are nearly twice as large as the corresponding parts of the other. Furthermore, neither of the four large plants presented a single bulb in the flowering head, while every one of the plants, from small root-bulbs, exhibited many of them in each head.

In smell and taste they also differ, the large variety bearing more resemblance in these respects to the leek, than to the true garlic.

As the genus *Allium* includes more than sixty species, botanists have found it necessary to adopt several subdivisions in the grouping of the species; and one ground of separation, adopted in Miller's Gardener's Dictionary, is founded on the presence or absence of bulbs in the flowering tops. According to this arrangement, there would be perfect propriety in considering the two plants in question as belonging to different species. But a careful examination of the entire plants shows that such a classification would be incorrect; for, although differing in one important particular, they harmonize exactly in many others.

All of the aerial portions of the large plant exhibit a striking similarity with the corresponding parts of the leek, while the underground portions bear an equally close resemblance to the true garlic.

Not being able to find in any of the standard works on botany the proper authority for considering the two plants as representatives of distinct species, and being satisfied from my own observations that they are not the same, I am led to the conclusion that the large plant may be justly esteemed as a hybrid, partaking of the nature of the garlic and the leek.

Entertaining this view, it is easy to account for the opinions

of the market-gardeners, who speak of them as being identical. The hybrid, having been once formed, would be self-propagating from its cloves, which being planted indiscriminately with those of the true garlic, would produce, from year to year, a mixed crop, in which the unsuspecting eye would recognize no other difference than that of size; the cultivator merely supposing that he has large and small bulbs, from accidental circumstances of growth, just as he has large and small potatoes produced from similar eyes.

AN ESSAY ON COCA, FROM ERYTHROXYLON COCA.

BY HENRY F. FISH, OF WATERBURY, CONN.

(Read in lieu of question No. 35, on Guarana.)

Coca, says Herndon, is a bush about four feet high, producing a small, light-green leaf. The blossom is white, and the fruit a small, red berry. The seed is sown in beds at the expiration of the rainy season, about March 1st. Arbors of palm trees are frequently built over the young shoots to protect them from the sun, and they are watered, if it continues clear, for a week or so. It is transplanted in September, a year and one-half after planting, and gives its first crop in one year from that time, and a crop every four months thereafter. The bush, if not destroyed by ants, will give crops many years. Sometimes, but rarely, the leaves wither and the crop fails. It is necessary to dry the leaves, when gathered, as quickly as possible, and to avoid any moisture or dampness in storing them. Every 100 plants furnish an *aroba* 21 pounds of leaves, worth in Lima about \$7.00, or 30 cents a pound. The leaf of this plant is, to the Indian of Peru, what tobacco is to the laboring classes of the South, a luxury. Supplied with an abundance of it, he sometimes performs prodigies of labor, and can go without food for several days. Without it, he is miserable and will not work. It is said to be a powerful stimulant to the nervous system, and, like strong tea or coffee, to take away sleep; but, unlike tobacco and some other stimulants, no one has known it to be injurious to the health.

The hacienda of Montana Carabaya produces three crops a

year. It is situated on a stream near San Mater, on a square inclosed with one-story buildings, a mill for grinding the silver ore, etc. About forty hands are employed: Indians of the Sierra, strong, hardy-looking fellows, though generally low in stature and stupid in expression. They are silent and patient, and having Coca enough to chew, will do an extraordinary quantity of work. They breakfast and commence work at 8 o'clock; at 11 o'clock they have a recess of half an hour, when they sit down near their place of work, and chew coca mixed with lime, which each one carries in a small gourd, putting it on the mass of coca leaves in his mouth with a wire pin attached to the stopper of the gourd. They then go to work again until 5, when they finish up for the day and dine. I have seen them puddling with their naked legs a mass of mud and quicksilver, in water, with the thermometer at 38°.—*Herndon's Expedition*, 1853.

It is said, that by taking a sufficient quantity of coca, a man is capable of dispensing with food for five days, without any material inconvenience, even though he is engaged in rapid travelling on foot, the whole time. Dr. Von Tschudi, in his travels, relates that a Cholo of Huavi, named Hatum Huamang, was employed by me in very laborious digging. During the whole time he was in my service, five days and nights, he never tasted any food, and took only two hours' sleep nightly. But at intervals of two and a half or three hours, he regularly masticated about half an ounce of coca leaves, and he kept an acullico continually in his mouth. I was constantly beside him, and therefore I had an opportunity to observe him closely. The work for which I had engaged him being finished, he accompanied me on a two days' journey of twenty-three leagues across the level heights. Though on foot, he kept pace with my mule, and halted only for the Chaechar. On leaving me, he declared that he would willingly engage himself again, for the same amount of work, and that he would go through it without food, if I would but allow him a sufficient amount of coca. The village priest assured me that this man was 62 years of age, and he had never known him to be ill in his life.

The aboriginal Peruvians who have been so barbarously enslaved by the Spaniards in their own country, and so inhumanly

over-tasked and otherwise ill-treated, use coca. In their circumstances it is really a necessary analeptic or restorative, without which they would hardly be able to tolerate the labor imposed upon them. Travellers tell us that all which prevents despair and revolt among those employed in the mines, is their being allowed a free use of coca. It would hardly be correct to say that they use it as a matter of sensuality.—*Tully's Mat. Med. Article Euphrenica.*

But by far the most extended notice yet published on Coca, is one given at Milan, by Dr. Mantegazza, a translation of which appeared in the London Pharm. Jour., June, 1860, and is as follows:—

“The Erythroxyton Coca, a plant which grows in moist and woody regions, on the eastern slopes of the Andes, is highly valued by the inhabitants of Peru, Chili and Bolivia, not only as a medicine, but also as an article of food; and serves with them as a substitute for the tea, coffee, betel, tobacco, haschisch and opium used by other nations. Its culture, upon which, since the time of Pizarro's conquest, much attention has been bestowed, has recently increased to such a degree, that in the year 1856, the revenue of the republic of Bolivia, from the sale of this herb, amounted to \$2,470,000, a very large sum when compared with the population, (only 800,000,) but it is likely that some of the crop is exported. According to the account of M. Pöppig, and of other well-known travellers, the natives use the dried leaves of the Coca either by themselves or in combination with a highly alkaline substance called *Uipta*, which is prepared from roasted potatoes and the ashes of other plants; they masticate them as the Malays do betel. The use of this, considered there as a great delicacy, is not, however, confined to the rich; on the contrary, it is particularly among the hard-working Indians that the Coca enjoys a high reputation as a nutrient and restorative, and its use is considered absolutely requisite to the comfortable endurance of fatigue and exertion, so that a laborer, in making his contract, has a view not only to his wages, but to the amount of Coca furnished. The Inca, who lives at a height ranging from 7 to 15,000 feet above the sea-level, and whose meagre fare consists only of maize, dried meat and inferior potatoes, believes that he can sustain his strength

solely by the use of Coca. The peon who carries the mail and who accompanies the traveller over the roughest roads at the quick pace of the mule, invigorates and strengthens himself by the use of Coca. The Indian, who works half-naked in the various mines, looks upon this plant as an ambrosia capable of imparting new life and of stimulating to new exertion." It is not surprising under such circumstances, that the use of this article should be very much abused, and that the evil of intemperance in the consumption of Coca, known as *Coquear*, should be quite as prevailing among the natives of those districts as intemperance in the use of tobacco, alcoholic liquors and opium is among other nations. They often intoxicate themselves for several weeks, hide in the deepest forests, in order not to be disturbed in their enjoyment, and not rarely return home to their families suffering from delirium or decided idiocy.

(This last sentence does not agree entirely with other authorities, who assert that Coca, unlike opium or alcohol, leaves no debility supervening upon its free use; and it may well be questioned, whether or no a delirious or an idiotic Indian would, as a general rule, be successful in finding his way home from "the deepest forests.")

The child and the feeble old man seize with equal eagerness the leaves of this wonderful herb, and find in it indemnification from all suffering and misery. Be it that the praised efficacy of the plant is merely the effect of fancy or tradition, or that the plant really contains a powerful principle, unknown to science, the solution of the mystery is certainly a theme worthy of scientific inquiry, and the investigations of Dr. Mantegazza deserve therefore our full attention.

Dr. Mantegazza observed that the chewing of a drachm of the leaves of the Coca increased (salivation?), giving at first a somewhat bitter and afterwards an aromatic taste in the mouth and *a feeling of comfort in the stomach*, as after a frugal meal, eaten with a good appetite; after a second and third dose, a slight burning sensation in the mouth and pharynx, and an increase of thirst, were noticed; digestion seemed to be more rapidly performed, and the faeces lost their stercoraceous smell, the peculiar odor of the juice of the Coca becoming perceptible in them. On using the

Coca for several days, the author observed on himself, as well on other individuals, a circumscribed erythema, an eruption around the eyelids resembling pityrias; from time to time, a not unpleasant prickling and itching was felt. An infusion of the leaves, taken internally, was found to increase the frequency of the pulse to a very considerable degree. In making his observation upon this point. Dr. M. was very careful to consider all the varying influences; he found that the temperature of the air being the same, and the liquids being heated to an equal degree, an infusion of Coca will increase the action of the heart (and arteries?) four times its normal standard, while cacao, tea, coffee and warm water only double it. By taking an infusion prepared from ʒiij. of the leaves, a feverish condition was produced, with increased heat of the skin, palpitation of the heart, seeing of flashes, head ache and vertigo; the pulse rose from 70 beats to 134. A peculiar roaring noise in the ear, a desire to run about at large, and an apparent enlargement of the intellectual horizon, indicated that its specific influence upon the brain had commenced. A peculiar, hardly describable feeling of increased strength, agility, and impulse to exertion follows; it is the first symptom of the intoxication, which is, however, quite different from the exaltation produced by alcohol. While the latter manifests itself by increased but irregular action of the muscles, the individual intoxicated by Coca feels but a gradually augmented vigor, and a desire to spend his newly acquired strength in active labor. After some time the intellectual sphere participates in this general exaltation, while the sensibility seems hardly influenced; the effect is thus quite different from that produced by coffee, and resembles in some degree that of opium. Dr. Mantegazza could, in this excited condition, write with ease and regularity. After he had taken ʒiv. he was seized with the peculiar feeling of being isolated from the external world, and with an irresistible inclination to gymnastic exercise, so that he, who in his normal condition carefully avoided the latter, jumped upon the writing table easily without breaking the lamp on it. After this a state of torpidity came on, accompanied by a feeling of intense comfort, consciousness being all the time perfectly clear, and by an instinctive wish not to move a limb the whole day, not even a finger.

During this sensation sleep sets in, attended by odd and rapidly changing dreams; it may last an entire day without leaving a feeling of debility or of indisposition of any kind. The doctor, finally increased the dose to 3xviij. in one day; his pulse rose in consequence to 134 beats, and in the moment when his exaltation was most intense, he described his feelings to several of his colleagues.

After three hours sleep, he recovered completely from this intoxication; and could immediately follow his daily occupation, without any indisposition; on the contrary, even with unusual facility. He had abstained 40 hours from food of any kind, and the meals then taken were well digested. From this fact, the author finds it explainable that the Indians employed as carriers of the mail are able to do without food for three or four days, provided they are supplied with Coca. From these experiments made repeatedly on himself and on others, Dr. Mantegazza draws the following conclusions:

The leaves of Coca, chewed or taken in a weak infusion, have a stimulating effect upon the nerves of the stomach, and thereby greatly facilitate digestion.

In a large dose, Coca increases the animal heat, and augments the frequency of the pulse, and consequently of respiration.

In a medium dose, 3 or 4 drachms, excite the nervous system in such a manner that muscular exertion is made with greater ease,—then it produces a calming effect.

Used in larger doses it causes delirium, hallucination and finally congestion of the brain. Since this paper was written, announcement has been made of the discovery and isolation of a proximate principle from Coca, by a German chemist, said to possess all the peculiar properties that characterize the plant itself. I have specimens of the dry leaves of Coca received from London; some, also, from Lima, through Prof. Procter, from Mr. Henry C. Lea, of Philadelphia, and I am expecting a parcel direct from Lima, myself. For a very minute and interesting detail of the use of Coca among the Indians, reference may be made to a small, but attractive book, by Captain Mayne Reid, entitled *The Forest Exiles*.

ON THEOBROMA CACAO.

BY EDWARD DONNELLY, M. D., OF PHILADELPHIA.

"The Cacao (*Theobroma cacao*)—the history of its culture, products, and uses, in medicine and domestic economy?"

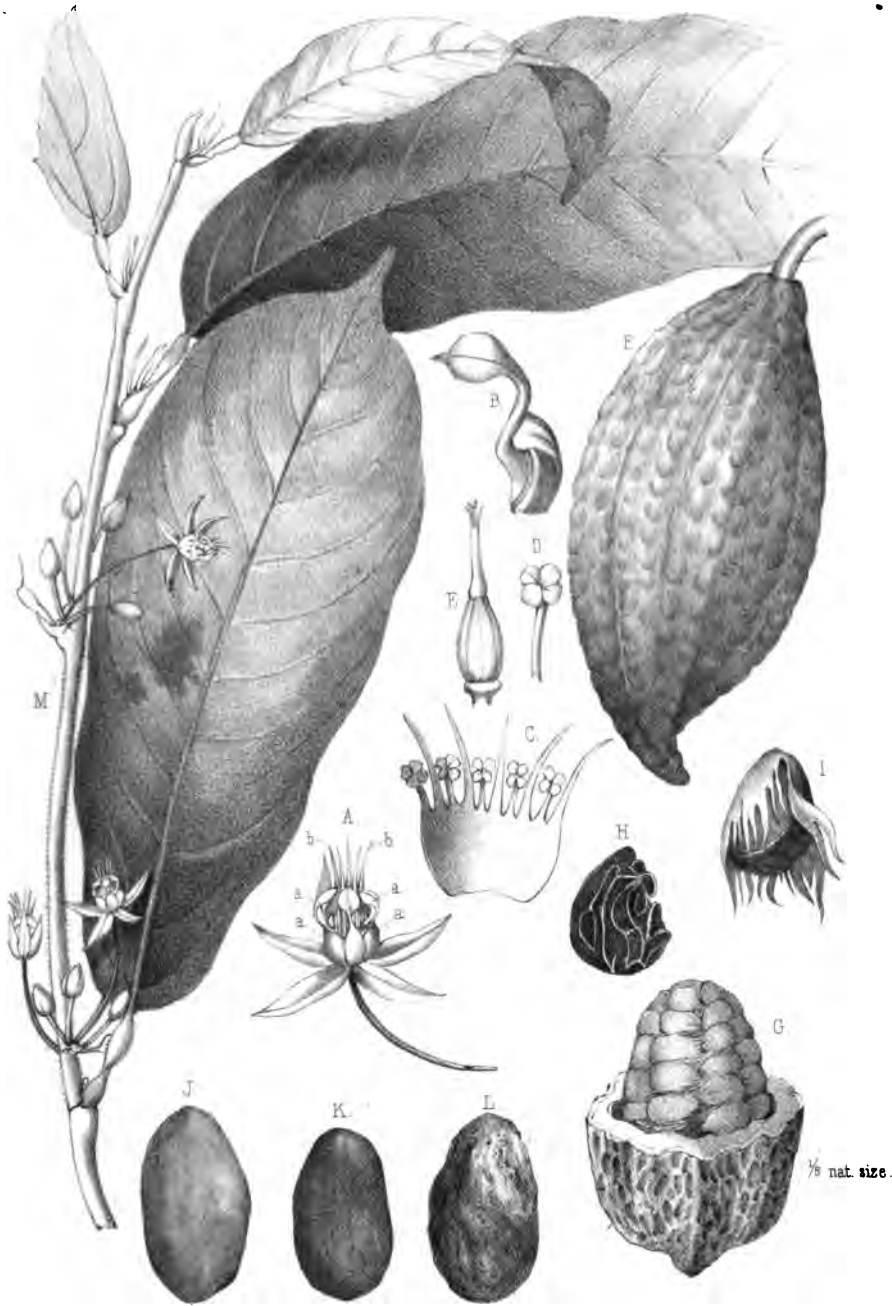
Such is the designation of a subject accepted by me at a meeting of the American Pharmaceutical Association, held in Boston last year. Owing, however, to the numerous divisions of the topic requiring investigation, I have been able to give only those parts which relate to the history of cacao and its culture, with *one* of its principal products—cacao seeds. A brief account is also given of some of its domestic uses, referring chiefly to *chocolate*, and other preparations made from cacao seeds for the table. It is my intention to reserve for the next meeting of the Association, to be held at St. Louis, a history of its uses in medicine, which will include all the products from cacao and cacao seeds; also, an account of the various chocolates, cocoas, pastes, confections, &c., made for consumption, with the adulterations and deceptions employed in their manufacture. The cacao butter (*Oleum cacao*) is becoming an article of commercial importance, its domestic and pharmaceutical agencies will, therefore, be investigated. These subjects merit more than ordinary attention; and it is to be hoped that the chocolate manufacturers of the United States will give such information as may be legitimately sought for. I take this opportunity to return my sincere thanks to the firm of Baker & Co., of Dorchester, Mass., for their kindness in sending me specimens of cacao seeds, and of their elegantly manufactured chocolates, chocolate paste, bromo, cacao butter, &c., all of which were highly spoken of by members of the Association at the meeting in New York.

THEOBROMA,* Linn. (Cacao tree.)

Order Naturalis, Byttneriaceæ.

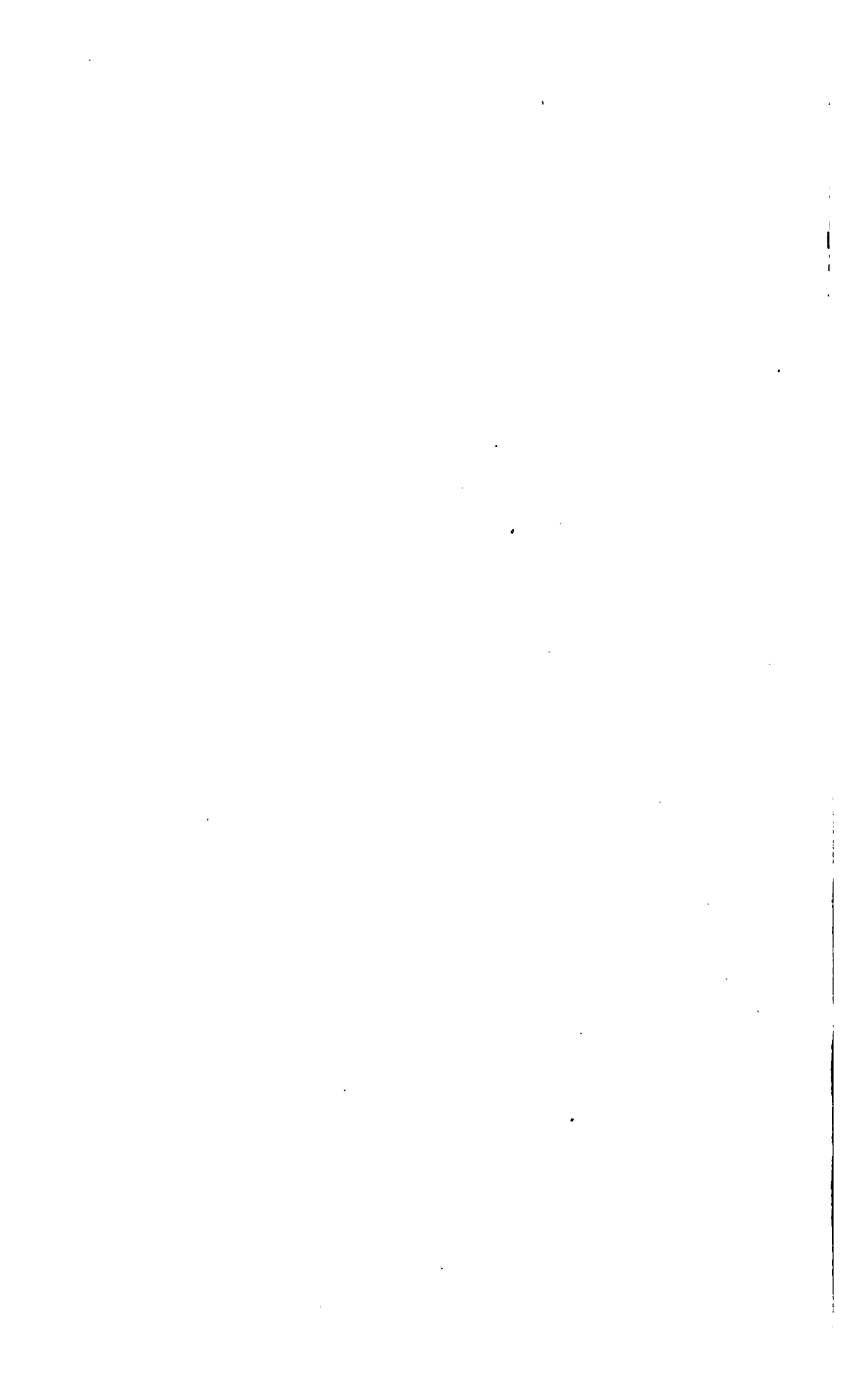
The following species of Cacao tree are described by authors, but with the exception of one, (*Theobroma bicolor*.) I think they

*Theobroma. From *Θεο*: God, *βρωμα*, food. This title (food for a god,) was conferred on the order by Linnæus, in consequence of his fondness for chocolate.



*A. Flower (mag) a, a, a, a, Petals, b, b. Sterile Filaments, B. Petal largely magnified, C. Divided Androphore, D. one of the Anther bearing filaments of the Androphore (mag) E. Pistil, F. Fruit $\frac{1}{4}$ the natural size, G. Horizontal section of Fruit. (of *Theobroma bicolor*) showing arrangement of seeds, H. Seed broken, and covering removed, showing its chunky nature, I. The same with its pulpy covering, J, K, L. Seeds of Trinidad, Surinam and Caracoo Cacao, as found in commerce. M. Flower-bearing branch of natural size.*

THEOBROMA CACAO. THE CACAO TREE.



all belong to the same species, and only differ in consequence of locality, cultivation, and peculiar influences of soil and atmosphere. *Cacao minor*, Gärtner, *Cacao sativa*, Lam.; *Cacao Theobroma*, Tussac; *Theobroma speciosum*, Willd.; *Theobroma subincanum*, Mart.; *Theobroma bicolor*, Humb.; *Theobroma sylvestre*, Mart. These trees are all natives of South America and the West Indies.

BOTANY. *Gen. Char.*—Calyx quinquepartite, almost quinquefoliated, colored. Corolla quinquefoliated; petals with expanded, carinated or canaliculated nail and a lamina drawn out to the shape of a spatula. Stamina ten; filaments, five fruitful ones, each bearing two anthers and all connate at the bottom, so as to form a decemfid capsule; anthers bilocular, hid in a cavity of the petals. Style filamentous, quinquefid, with simple stigmas. The capsule (berry-like,) not dehiscent, quinquelocular, with polyspermous compartments, and a ligneous leather-like bark. Seeds nestling in a buttery fleshy pulp.

Theobroma Cacao, L. Genuine Cacao tree.

Sp. Char.—A small tree, twelve to twenty feet high, branching out at the top. Stem erect, straight, four to six feet high.

Wood light and of a white color, covered with a thin, tolerably smooth, brownish bark. Leaves alternate, petiolate elongated, pointed, at the bottom rounded, whole-edged, ribbed, venous, smooth on both sides, dark green, eight to ten inches long, the younger ones rose-colored. The leaf-stem terete, in the middle thinner than at either end, at the base with two little, linear, awl-shaped stipules. Flowers petiolate, axillary, after the falling out of the leaves lateral, more or less aggregate. Pedicels uniflorous, filiform. The calyx quinquepartite, rose-colored, deciduous; the divisions ovally lanceolate, angustate, pointed. Petals five, hypogynous, at the bottom or nail strongly cuneiform, broader and hollowed out like a cap; above that, linear, filiform, angustate, and on the forepart expanded in a spatulate, broad, inversely oval, pointed, dentate lamina, yellow. Stamina rose-colored, linear, awl-shaped, at the bottom connate, urceolate, the five sterile ones three times longer than the five fruitful ones, and erect; the fruitful ones opposite the petals and bearing on the

top, two anthers bent outwardly and hid in the hollow nail of the petals. Ovary free, sessile, oval, elongated, with ten grooves, downy, five compartments, in each compartment about eight ovules in two rows. Style filiform, at the point quinquifid, with simple stigmas. Fruit ovally elongated, towards the bottom a little narrowed, at the top flat, pentagonal, with 10 grooves, base of a dirty lemon color, somewhat reddish, covered with a ligneous, leather-like bark, filled with a whitish, sweetish pulp, six to eight inches long, three to three and a half inches thick. Seeds numerous, lying in rows across, oval or ovally elongated, compressed, unequal, half to one inch long, of a reddish brown, on the inside dark brown. The tunic of the seed double, the outer one like a bark, thin, brittle; the inner one skin-like, pappy, penetrating between the folds of the seed leaves. The albumen is wanting, the chinky, oily, embryo, has the shape of the seed, the seed-leaves are thick, with rugous lobes, the rootlet is inclosed between the flatter ends of the seed-leaves.

History of the cultivation of Cacao.

Long before the discovery of America and at a period far distant from that event, we are informed by Aztec history that the civilized nations of Mexico cultivated cacao. It was one of the many vegetable productions of the continent which the natives of Central and South America, took much pains in cultivating, for upon it depended, in a great measure, not only the support of themselves and families, but they also had to pay in cacao seeds the tribute due to their chiefs and rulers. It formed the currency of the inhabitants, the medium of exchange, by which they purchased and supplied all their wants, from the Gulf of Mexico to the interior of Brazil, and through the continent, from the Atlantic to Guayaquil on the Pacific. We of the present day can have but a faint conception of the great extent and perfection the culture of cacao must have attained. It far exceeded that of any other vegetable growth of the country. The following brief narrative of the extent of cultivation and consumption at the time of the conquest, will give a partial idea. Historians of the sixteenth century, inform us that the kingdom of Acolhuacan, whose capital was Tescuco, consumed annually two millions seven hundred and fifty-four thousand fanegas* of cacao seeds

*Fanega, a bushel, or about 100 lbs. Spanish, equal to 101½ lbs. English.

equal to about two hundred and seventy-five million four hundred thousand pounds English. Such consumption in a small kingdom bordering on that of Mexico, to which it was afterwards united by Montezuma, will enable you to form an estimate of the great quantity used by all the nations of the then densely populated continent. But it was to the market of the great city of Tenochtitlan, (Mexico,)* that the largest quantity of cacao was brought; all the kingdoms subject to Montezuma paying tribute in cacao. Its consumption was immense in the capital, and it was from here that all the northern provinces were supplied, in exchange for other commodities brought to this great market. Bernal Diaz,† in describing the merchandise offered for sale in the great square called Tateluco, and the multitude of people there assembled, says: "Each kind of merchandise was by itself, and had suitable and proper places assigned to it, beginning with those dealers who sold gold, silver, precious stones, plumes, mantles, worked goods, slaves, male and female; there were also other merchants who sold an ordinary kind of cloth, cotton and other goods of twisted thread, and there were cacao-men, who sold cacao." In this plaza, were to be found all the various wares and productions of New Spain, (Mexico.) After giving a long list of articles, showing the advancement in arts and civilization of these people, he continues, "We went to the great Cu (Teocalli, or temple,) and when near its great courts and before going out of the same square, there were many other merchants whom they said had gold in grains, as it was taken out of the mines and put into thin quills taken from the geese of the country, and so clear that the gold could be seen from the outside, and by the length and thickness of these quills, they reckoned how many blankets, or xiquipiles‡ of cacao, or how many slaves, or anything else they had to get when they exchanged them." Thus it will be perceived, that cacao-seeds, on the arrival of the Spaniards in Mexico, were counted into parcels of 8000 seeds called xiquipiles; so many

* Bernal Diaz calls this city Tenustitlan, Mexico, which he says they entered on the 8th of November, 1519.

† Historia verdadera de la conquista de la Nueva Espana. Por el copitan Bernal Diaz del Castillo.

‡ Xiquipiles of cacao=8000 seeds or nuts.

xiquipiles were given for slaves, gold, blankets, or whatever else was required by the natives, so proving that these seeds were the only real money of the civilized nations of Anahuac, (all Mexico.) The inhabitants of America were divided into two classes, as in respect to their most important pursuits, viz. : the agricultural and hunting, the pastoral was not known, if we except the case of a few Lamas, on the high table land of the Andes. Agriculture was followed in Central America, the islands of Hayti and Jamaica, in North America, Venezuela, New Granada, Guiana and Guayaquil in South America. These countries cover an extent of over two million square miles and in all the favorable localities, the natives had their conucos—inclosed plantations. In some instances so fearful were the planters of the Spaniards destroying their valuable plantations, that we are told by Oviedo y Bannos, in the history of the conquest of Venezuela,* that the Cacique of Aguntas declined taking part against the Spaniards in their march on Caracas under Losada, in consequence of the great plantations of cacao he had in his dominions. The period we have noted may be called the first and greatest in the culture of cacao ; a period in which we have seen that agriculture was not only the pursuit of the civilized nations of Mexico, but also the warlike anthropophagic Carib, in the fertile islands of the Caribbean sea. We shall draw a veil over the deeds of the Spaniards, for the next one hundred years. They in their thirst for gold and conquest, destroyed the plantations of the Indians, whilst they themselves neglected the cultivation of the soil, and for a long time after these *conquistadores* had over-run that part of North and South America where cacao had been cultivated, nothing but desolation and the complete extinction of the ancient civilization of the people succeeded, and even to this day, if we want to see the native culture of cacao, we must go into the dense forests surrounding the sources of Orinoco, Casiquiare, and Rio Negro, where the Indian pursues his peaceful labors in lands cleared amidst the forest, and where the blasting influence of the destroyers has not yet penetrated.

It was not until the latter part of the seventeenth century that

*Little Venice.

the inhabitants of Venezuela and other portions of South America, began to cultivate cacao for exportation. Previous to this time, the ruinous policy of Spain, in regard to her colonies, in preventing them trading with foreigners, combined with the error of the colonists, who could only appreciate the soil in proportion as it yielded the precious metals, kept back all branches of agriculture, the inhabitants having no inducements to raise more than was sufficient for their own consumption, and supply their simple wants; and even after commerce with foreign colonies had been allowed, an exception was made against the exportation of cacao. It was the only product of the Spanish possessions prohibited in the purchase of slaves, by the Spanish government. But these restrictive measures of Spain, in excluding all nations from intercourse with her colonies, was the principal cause of her losing much of her domain in the West Indies, and other parts of the world. The enterprising and hardy adventurers of northern European nations, jealous of the wealth poured into the lap of Spain from her colonies, determined to break through all barriers against trade, and whether we consider these adventurers buccaneers, pirates or contraband traders, we do know that they forced the Spanish government to enlarge its views, and stimulated the colonies to agricultural pursuits as a sure means of wealth. To this end I might cite particularly the example of Terra Firma, or the eastern part of it, at that time known as the Captain-Generalship of Caracas, which included the provinces of Venezuela, Varinas, Maracaibo, Cumana, Spanish Guiana and the Island of Margareta. These provinces, after the Hollanders had seized upon the Island of Curaçoa, in 1634, began to cultivate cacao as their principal article of commerce, in exchange for the commodities brought by the enterprising Dutch. This contraband trade was carried on to such an extent, that of the 65,000 quintals* of cacao grown in the province of Venezuela alone, only 21,000 was exported to Spain, Vera Cruz, the Canaries, and other Spanish possessions. The balance was disposed of contraband to Dutch, English, and other foreigners. Thus was Spain deprived of a

* Quintal = 4 arrobas = 100 pounds Spanish, which are equal to 101½ pounds English.

yearly revenue, which she derived from cacao in one province alone, of nearly fifty thousand dollars, as there was an export duty of seventy-five cents on every quintal, or 100 pounds, besides a tithe of ten per cent., two-ninths of which went to the king, the rest to churches and hospitals. This state of affairs continued until the formation of the celebrated company of Guipuscoa, in 1728. This body, composed of enterprising Biscayans, was formed for the express purpose of destroying the contraband trade of foreigners, and of supplying the people of Terra Firma with merchandise. Such was the stimulus this company gave to the production of cacao, that never before, excepting in the time of the Indians, were such large quantities gathered. To Spain alone, the company sent, during eighteen years—from 1730 to 1748—the enormous quantity of *eight hundred and fifty-eight thousand nine hundred and seventy-eight quintals*; an amount one-third greater than had been exported to that kingdom the preceding thirty years. This state of prosperity in the cultivation of cacao, continued in nearly all the Spanish colonies as late as the year 1782, and may be justly termed the second and last period of agricultural prosperity ever to be enjoyed by our unfortunate neighbors of South and Central America. Up to the era we have mentioned, coffee, cotton and indigo, were considered unworthy competitors in commerce by the side of cacao, and to show how much the people were prejudiced, it is stated that it required the greatest firmness of Padre Orendain, and his companion, Arroide, to overcome the prejudice, which could perceive only folly in requiring indigo from a soil accustomed to yield only cacao. But another event, of greater importance than the experiments of the worthy priests, decided the fate of cacao in most of the Spanish colonies, and that was the war which broke out between England and Spain, which continued from 1793 to 1801; during all that period, the coasts of Mexico, Terra Firma and the Spanish West Indies, were closely guarded by British cruisers, effectually preventing any commercial communication with the mother country or other colonies. The different articles of produce remained in the hands of the producers, and as cacao was the principal product, and one which required a quick sale, owing to its spoiling in from ten to twelve months, in the damp atmos-

phere of the tropics, the colonists were forced to substitute another agricultural article in its place, that could be kept on hand for an indefinite time—that article was coffee. From this date, (1796,) may be inferred the decline of cacao, and the advance of coffee production throughout the whole of the Spanish possessions. Spanish America, at the time of the revolt of the Spanish Americans, was divided into four viceroyalties—Mexico, Peru, Buenos Ayres and Santa Fé; and five capitaneries—Porto Rico, the Havana, Caracas, Guatemala and Chili. In all these divisions, cacao was more or less cultivated, and the early prosperity of many of them depended entirely upon it.

To elucidate this, and be as brief as possible, I will name, in the order of their importance, those places where, at the present day, cacao is grown to the greatest extent, without reference to its quality:—Guayaquil, in Ecuador; Caracas, Cumana, Maracaibo, the valleys of Tuy, Orituco, Ocumare, Cura, Marin, Santa Theresa, Santa Lucia, Zuapira, Santa Philippo, Barquisemento, in the vallies of Santa Rosa, Valencia, Guigue, Cariaco—all in Venezuela. The cacao from Venezuela is generally known in commerce as Caracas; and if from some of the ports—as La Guayra, Maracaibo, etc. Next comes New Grenada, and in that republic, the valleys watered by the Magdalena, Cauca, Jachira, Pamplona and Zula; by the last named stream much of the cacao of New Grenada finds its way to Maracaibo; Surat, Canaverales and Neyva, on the borders of the Magdalena and Timena, near its source, also furnish large quantities. On the same river may be seen rafts laden with cacao, where they descend to Honda to be disposed of. Guatemala, ever famous for its cacao, and the only one of all the Spanish possessions whose cacao was worthy of being used at the table of the kings of Spain, is at the present time so divided and dismembered, as to sink into insignificance in comparison with countries previously mentioned in raising cacao. But very different was it when the old Captain-Generalacy of Guatemala existed, which then comprised the provinces of San Salvador, Costa Rica, Guatemala, Honduras and Nicaragua.—These united, after their separation from Spain, under the name of the Republic of Central America, but alas! the armorial device of five volcanoes on the national flag, has been but too truly

typified in the internal political eruptions, which severed the union in a short time, and we now have five republics continually battling for supremacy, to the destruction of all commerce abroad, arts and agriculture at home; and that, too, in a land which might be termed the Garden of the New World. Of these republics, those growing the most cacao are Guatemala, Nicaragua, Honduras and Costa Rica; that of Soconusco, the extreme western district of Guatemala, and near to the Mexican state of Chiapa, is the place where the best cacao in the world is produced, and which, as before stated, the Court of Madrid kept for its exclusive use. In Costa Rica several enterprising Philadelphians have cacao plantations. In Mexico, cacao was never much cultivated, and those states which yield the largest amount are Tobasco, Chiapa, Tehuantepec, Minatitlan and Yucatan, but these do not produce enough for home consumption, and the cacao of Venezuela and Guayaquil is sent to Vera Cruz and Acapulco, thence to be distributed through the republic. We come next to those islands which divide the Gulf of Mexico from the Atlantic Ocean, and called by some geographers the Columbian Archipelago, but commonly known as the West Indies. On some of these islands at present cacao grows, but owing to the dryness of the atmosphere, and an exhausted soil, it is generally of inferior quality, and is known as Island Cacao. Hayti, Jamaica, Cuba, Trinidad, St. Vincent and Grenada, are the principal of these. In Guiana, it has given place to the production of sugar in most of the settlements, except in Cayenne, which exports a considerable quantity; it is found growing wild throughout the whole of Guiana, in the forests bordering upon the main rivers, and reaches the height of 30 to 40 feet. The Caribs cultivate it in the interior, and bring it to the settlements.

Within the last few years the northern provinces of Brazil have raised and exported large quantities of cacao, particularly Maranao, Para and Amazonia. Plantations may be seen extending for miles through the last-named province, particularly along the banks of the Amazon and its tributaries, the Rio Negro, Ucayali, Hualaga, Marmore, &c. I will remark that the cacao is cultivated in Brazil mainly for exportation and the manu-

facture of Mantega de Cacao, (cacao butter.) Peru and Bolivia yield cacao, but not enough for home consumption. In the former republic, the provinces of Maynas and Chachapoyas raise both cacao and coco; in the latter, on the plains of Moxas and Chiquitas, cacao and coco are produced; the valley of Yungas, cacao and coffee. I have thus shown you, in this rapid sketch of the countries producing cacao, that it is cultivated from the eastern base of the Andes to the Atlantic Ocean, and from over 20 degrees north latitude to the same south. On the western side of the Cordilleras we find it growing luxuriantly in the vales of Guayaquil, Dauli and Cauca. Cacao was also cultivated by the Spaniards in some of their Asiatic possessions, and particularly in the Island of Luzon, or Luconia, as it was formerly called, and whose capital, Manilla, had so much trade with Mexico in the seventeenth and eighteenth centuries, that the English pirates received great booty in gold, silver and cacao when they captured a vessel going from Acapulco to Manilla. The French Island of Bourbon, on the coast of Africa, and in Algeria, the French, I am told, have attempted to cultivate it.

Its Culture.

The proper system of cultivating so valuable an article of commerce is worthy of an exact analysis; and I will endeavor, with some assistance, to convey something of the information required.

Authors who have referred to the cultivation of cacao in their works on Central and South America, have been consulted, and so much of their description copied as agreed with my own observations during a residence of eight years in those countries. Of those I have adopted, I will name especially Humboldt,* Squire,† Herndon‡ and Depons;§ to the last, in his valuable work on Venezuela, I am particularly indebted.

In selecting a situation, it should be as little as possible exposed to the north-east winds, as they have been known to do great injury by lowering the temperature only a few degrees. The soil should be rich, deep and loose, and perfectly clear of all

* Personal Narrative, vol. ii.

† Nicaragua, vol. i.

‡ Exploration of the Valley of the Amazon, vol. i.

§ A Voyage to the Eastern part of Terra Firma.

unnecessary trees, shrubs, or other plants. This is accomplished by felling the trees after the rainy season, allowing the timber to dry, which it soon does under a tropical sun. The whole is then set on fire, and what was once a dense forest is now a barren plain, covered with the ashes of its former foliage. As soon as the ground is cleared of all wood left unconsumed by the fire, small canals are cut in directions according to the declivity of the ground. These serve to carry off the rains, irrigate the soil, and water it in time of drought. The line of adjustment is then marked out in which the cocoa trees are to be arranged. They are planted in squares or triangles, according to the taste of the proprietor. In either case in Venezuela and most of the Spanish plantations, an alley is always made in the centre of the triangles running from east to west. When they are planted in squares, the alley running east and west is intersected by another running north and south. This custom is not followed by the Portuguese in Brazil. The trees are planted from 14 to 16 feet apart, and in some places even as far as 19 to 20 feet. This is almost the only tree in the whole vegetable kingdom to which the beams of the sun are deleterious, and it requires to be sheltered from their ardor. The mode of combining this protection with the principles of fertility, forms a very essential part of the skill which its cultivation demands. The cacao tree is mingled with other trees which guard it from the rays of the sun, without depriving it of the benefit of the heat, and for this purpose the erythrina, or coral tree, is employed in most places; but the banana, in consequence of the rapidity of its growth and the magnitude of its leaves, is generally employed as a protection for the first year. The coral tree endures as long as the cacao. There is no sight so beautiful in the vegetable world as a view from a height over a cacao plantation, when the erythrina, called "cacao madre,"—mother of the cacao—has dropped its leaves, showing then to advantage its large scarlet flowers, appearing, as looked at from a distance, like a forest tipped with flames, supported in the air by the interlocked branches and dark green leaves of the cacao.

Planting.

In one range of cacao trees a banana is planted between two

cacaos, an erythrina between the two following. In the other range a banana is planted between each cacao tree, and no erythrinās, so that the latter are at the distance of two alleys. The banana and erythrina are first planted; and when a shelter from the sun is thus provided, the hole for the cacao is made, around which are planted four stalks of the yucca plant, (*Jatropha Manihot*) at the distance of two feet from each other. At the end of two months the cacao is inserted into the ground; the smaller the plant is, the better. There are, nevertheless, soils subject to worms, where the small plants do not answer; but, excepting in this particular, the small plants are preferable, because the large require more labor for their transportation and planting; many of them die, and those which survive, bud and shoot forth, but are never very productive. The cacao plant should not exceed 36 inches in height when transplanted; if larger, it succeeds with difficulty. The *nurseries* of cacao demand an excellent soil, well prepared, where the water does not remain, and where they are well sheltered from the sun. Small knolls of earth are formed, in each of which are put two grains of cacao; the grains in the knolls are all equidistant from the level of the ground. During the first twenty days the seeds are covered with two layers of banana or other leaves. If necessary, the ground is watered. The most suitable time for sowing is in November. Where there is no facility for watering, the planting of the cacao should take place in the rainy season; but where the watering is practicable, it is best to plant in dry weather and assist nature by irrigation, since it is then in the power of the cultivator to give the exact quantity of moisture necessary. But, in all cases, care should be taken that the plants are not wet in the interval of their being taken out of the ground and replanted. When the *cultivation* is from the seed, two grains of cacao are planted in the same manner as before described, so that they are on a level with the surface. They are then covered with a banana leaf folded three times, on which is placed a small weight to keep it down. As soon as the seeds shoot forth, the banana leaf is removed. If both grains have sprouted, the feebler is cut, to insure the vigor of the other. Until the cacao plant attains four feet in height, it is trimmed to

the stem. If it shoots forth several branches, they are reduced to three, at equal distances ; and in proportion as the plant increases, the leaves which appear on the three branches are stripped off. If they bend much and incline towards the earth, they are tied in bunches, so that the tree may not remain crooked. The branches which are not trimmed are cut at the distance of two fingers from the tree. The suckers which spring from the tree are also removed, as they live at its expense only.

Enemies of the Cacao.

The foes of the plant include not only the *larvæ* of the numerous South American insects, some of which attack, according to their species, the roots, wood, bark, leaves, flowers, or fruit ; but even escaping all these by the vigilance of the planter, the numerous tribes of animals which devour the pod of cacao, make the harvest very uncertain, and in one night destroy the hopes of the grower. These animals are the stags, squirrels, monkeys, and agoutis, all of which like the rich gelatinous pulp that envelops the seeds. The birds, too, are not idle in the work of destruction. The whole parrot tribe are very injurious, and as most of the species go in large flocks to seek their favorite food, the cacao, it may be judged how they conspire to ruin a plantation. But besides all these enemies of the cacao, which vigilance and the use of a gun tend to diminish, there are other causes beyond the control of man, which tend to make the harvest one of the most uncertain of all earth's products—I allude to the inclemency and uncertainty of the seasons. The heavy showers that fall irregularly after the rainy season has passed have a tendency to destroy the cacao. Says Humboldt, "In the season of drought, if the leaves and young fruit are wet by a violent shower, the fruit falls from the stem ; for it appears that the vessels which absorb water break from being rendered turgid." Too much exposure to the sun causes the branches to scatter, cracks the bark, and the tree dies. To preserve a cacao plantation, shade and irrigation are the chief requirements ; for in an atmosphere continually humid, such as exists on the selvas, or forest plains of the Amazon, the tree yields fruit in from three to four years ; whereas in Central America and the West Indies it re-

quires from seven to eight years; all owing, no doubt, to the dryness of the atmosphere and the want of that humidity which seems to retain, in a state of suspension, those gases which arise from the decomposition of vegetable matter, and which are regarded as fecundating principles to living plants.

Harvest of the Cacao.

The cacao yields two principal crops in the year all over Central and South America. In Venezuela the first is gathered about the 21st of June, the other about the end of December. In Brazil the first crop is gathered in February and March, and is called the summer harvest; the winter harvest is in June and July, and is much the larger. These are the principal harvest months, but the cacao ripens and is gathered during the whole year. To collect the cacao requires, according to Depons, "sharp sight in the negroes and Indians who collect the fruit, that the ripe only may be gathered." The following, principally from the same author, will give an idea of the process of collecting and preserving the cacao: The most robust and active men are chosen to carry it to the places where the grain is to be shaken out. The aged and maimed are employed to shake out the grain. This operation is performed on a place well swept and covered with green leaves, on which they place the cacao. Some open the pod, and others strike out the grain with a small piece of wood, which must not be sharp, lest it should injure the grain. The good and bad cacao must not be mingled together.

There are four sorts of cacao in every crop: the ripe and in good condition, the green but sound, the worm-eaten, and the rotten. The first quality is the best, the second is not bad, but the two others should be rejected. As soon as that which is not fully ripe begins to show specks, it must be separated from the sound. As to the pods which are not perfectly ripe, they should remain in heaps during three days under green banana leaves, that they may ripen before they are hulled. Where the cacao is put in store, great care is necessary not to leave among it pieces of the pod or leaves, or any other external particles. This care must be continued every time that it is removed from the store or replaced in it. The cacao

should always be exposed to the sun, on the fourth day after it has been gathered, and this exposure should be daily repeated until it is perfectly dry. When this is the case, the grains burst on being compressed, their shell resounds when struck, and they no longer become heated on being placed in heaps; the latter is the best proof that the moisture, injurious to their preservation, is dissipated. If the cacao is not sufficiently exposed to the sun, it becomes mouldy; if too much, it withers and easily pulverizes; in either case it soon rots. In wet weather it must be spread in apartments, galleries or halls, with which the plantations of cacao must be provided. This operation cannot be delayed without danger of losing the crop. Stoves are now used on most of the plantations for the purpose of drying cacao when there is no sunshine. In the apartment containing cacao, some persons place bottles of vinegar, slightly stopped with paper, to prevent the formation of worms. The cacao which begins to show specks, may be preserved from entire corruption by a slight application of brine. This occasions a small degree of fermentation, which is sufficient to destroy the worms and preserve the cacao during a considerable time from new attacks. In some places, smoke is used to preserve the seed. It is also ascertained that fine salt, thrown in small quantities on the cacao, protects it from worms. Much has been done for it when it has been cleared of all green or dead grains and of all extraneous articles, when it has received no bruise or injury in the operation of drying, and when it has been subsequently kept in a place that is dry and not exposed to the air. Yet, even with all these precautions, cacao of the best quality is seldom found still merchantable at the end of a year. These circumstances sufficiently prove that the culture of cacao demands more attention than science, vigilance rather than genius, and assiduity in preference to theory. Choice of ground, distribution and draining of the waters, position of the trees destined to shade the cacao, are almost the only points which require more than common intelligence. Less expense is also required for an establishment of this kind than for any other of equal revenue. One person is sufficient for the preservation and harvest of a thousand plants, each of which should yield at least one pound of cacao in ground of moderate

quality, and a pound and a half in the best soil. By an average calculation, of twenty ounces to each plant, the thousand plants must produce twelve hundred and fifty pounds, which, at the customary price of twenty dollars per hundred, produces two hundred and fifty dollars per annum for each slave or laborer. In Brazil, if the ground is good, every thousand trees will yield fifty *arrobas*,* or sixteen hundred pounds, which sells for from one dollar to one dollar and fifty cents per *arroba*, equal to fifty and seventy-five dollars per thousand trees; and one negro is able to take care of two thousand trees. Trees are valued at sixteen cents each, and the land is never counted in the sale. The expenses of the plantations, including those of utensils, machines and buildings, are also less for cacao than for any other produce. The delay of the first crop, and the accidents peculiar to cacao, can alone diminish the number of planters attached to its culture, and induce a preference for other commodities. The cacao tree continues productive to the age of fifty years on the coast, and thirty years in the interior. In some localities, the cacao tree comes to perfection in the fourth year, whilst in others, not till the eighth or ninth; these differences all depend on locality, as the rich soil and damp atmosphere of the interior is more favorable than the dry atmosphere and exhausted soil of the coast.

Semen Cacao—Cacao Seed.

The seeds of *Theobroma cacao*, as well as other varieties of the same species, are officinal and known in commerce as cacao beans, cacao seeds, cacao nuts, cacau, cacao, caccau, semen, s. fructus, s. nuces, s. nuclei, s. fabæ cacao, cacavahe, semen cacavahe, semen theobromatis, *Avellane Mexicanæ*, *Amygdalæ pecuniarie*; Cacahuatl in the Azteck or ancient Mexican language. Cacao bohnen or Cacao nüsse (German.)†

* Arroba, Portuguese, = 32 lbs. English.

† A great deal of confusion is created by the following named substances being confounded with each other in consequence of the similarity of names, although few productions differ more widely from each other in appearances, properties, &c., viz: *Coca*, *Cacao*, *Cocoa*, and *Coco*.

Coca is the dried leaves of the *Erythroxylon coca*, a small tree growing in Bolivia, Upper and Lower Peru. It is extensively used by all classes, particularly miners and persons who have to undergo great bodily exertions. It allays hunger, although not nutritious, and prevents sleep, and to those once

The seeds when taken from the fruit require to be deprived of a slimy covering, previous to being brought into market, and also for their preservation. In the description of the harvest of cacao, mention was made that "the cacao must always be exposed to the sun, on the fourth day after it has been gathered," and also freed from the pulp. Prior, however, to this exposure to the sun, the seeds are left in heaps four or five days, whereby a slight fermentation is produced through which the germinating power is killed, and the seeds become fit for longer preservation. After this they are dried in the sun. Frequently the cacao seeds are buried fresh in the earth, or packed in great casks or baskets, and compressed by a heavy weight; a higher degree of fermentation is thus produced, the seeds become more brown, and lose part of the acerb and bitter taste which they possessed in their fresh natural state. After this process the seeds are likewise dried. Most of the cacao from Brazil and Cayenne comes into the market without having undergone the fermenting process, consequently the outside covering is tougher, and the cacao more bitter and astringent. The following varieties of cacao are generally brought into market.

1. *Soconusco, or Mexican cacao*.—This is a superior kind, and found in trade very rarely. It is collected in the Republic of Guatamala. The seeds are very small, quite convex, almost a golden yellow, with a fine aromatic and agreeably mild taste. That of Esmeralda is the nearest to the Mexican; this is of a dark orange color, heavy, and aromatic. The chocolate manu-

accustomed to its use, it becomes as necessary as opium or laudanum to those accustomed to such a narcotic, and like all narcotics, this brings the victim of it to as miserable an end. The manner of using the leaves is similar to that of tobacco with us, with the exception that before placing them in the mouth, they are mixed with a small quantity of quicklime for the purpose of making them more stimulating. An Indian will travel two or three days with scarcely any other support.

Cocoa, a simple preparation of ground cacao seeds, and differing from chocolate in not being cast in tablets. The proper name should be cacao.

Cocoa, Cocos,—the fruit of the cocoa-nut tree, (*Cocos nucifera*)—a species of the Palm tribe, found growing in all tropical countries near the sea-coast.

Cocoa-nut is too well known to need description.

Cacao.—The seeds of the fruit of the cacao tree, *Theobroma cacao*, described in the text.

factured from both these kinds of cacao is very much esteemed; it is of a gold color and has a very fine taste.

2. *Guatemala cacao*.—Very large, and convex, frequently angular and pointed at one end. The seeds contain much oil. It is supposed that this variety comes from an unknown species of theobroma.

3. *Caracas cacao*.—Caragua, cacao caragua, is collected in Venezuela. The seeds are of medium size, and of irregular rotundity; their shell is thick, of a reddish brown, and generally covered with a white, shining mica dust, which adheres when the seeds after fermentation are dried on the sandy ground; the kernel is of a beautiful chestnut brown, more dry and not so rich in oil as the West Indian; it has a mild, agreeably bitter taste, and dissolves itself in chewing with the exception of a small, mealy, cinnamon-colored part; whilst of other sorts, which at the same time have a more bitter taste, a larger light-brown or dark or violet-brown part remains. In commerce this good variety of cacao is almost always mixed with the others. The smaller seeds which are found in it are said to come from *Theobroma bicolor* of Humb. et Bonpl. There is also a distinction made between great and small Caracas cacao; the former sort is gathered on the coast of Venezuela and commands a higher price than the latter. The cacao of Maracaibo, of Pamplona, and St. Martha, and of Trinidad, are pronounced nearly as good as that of Caracas.

4. *Guayaquil cacao* is similar in color to *Caracas cacao*, but not so rich in oil. The seeds are larger, flat and broad, dark red and less covered with mica lamina; the kernel tastes more bitter, yet not disagreeable. In roasting, an odor similar to that of coffee is produced.

5. *Maranhao, Maranhão, Maragnon, cacao from the Brazilian province of Maranhão*.—The seeds are a little flat and broad, with smooth, shining shell and a kernel of an agreeable, though somewhat bitter taste, dark red color approaching to violet; the seeds containing much oil. Sometimes a great many unripe seeds are found among them, diminishing their value in the market. In connection with this cacao may be mentioned that of Para, Amazon, and Rio Negro, all of which resemble it, with the exception of being a little smaller and more acerb in taste.

6. *Berbice cacao*.—Seeds small and flatter than *Caracas cacao*, yet when fully ripe they are nearly round, very rich in oil; their shell is of a gray color and appears covered with earthy, dusty particles, and so frail that it is frequently found separated from the kernel, the latter is also very brittle and easily broken to pieces between the fingers. The odor is fragrant. Taste fine and oily. This sort mixed with *Caracas cacao* makes a fine chocolate.

7. *Surinam cacao*.—Two sorts of cacao are brought into commerce under this name. 1st. Seeds large and roundish; shells through dust have a whitish color; kernels are greenish, brown, gray and blackish, as well as of a bright red, reddish or violet, taste somewhat bitter but agreeable. 2d. Seeds small and flat; the oily, sometimes rancid kernels have an acerb, disagreeable rancid taste; shells are whitish, sometimes, a dirty brown, as they are covered with dust and earth. Only the first best variety, which sometimes in taste approaches the *Berbice cacao*, is valued. The second sort communicates its disagreeable taste, of which it loses but little by roasting, to the chocolate.

8. *Cayenne cacao*.—Mixed seeds, generally elongated, at one end more pointed, nearly always flat; they are covered with a dark or ash gray, sometimes light red brown, mostly have a shining, dustless, hard and strong shell, the kernel is very oily, polished, fat and blood red, taste acerb and disagreeable, and the odor smoky, which it loses by roasting. This species at one time was not much valued, but owing to more care in its collecting, a better commercial article has been produced, and it now enters largely into the manufacture of chocolate. It is asserted that this sort cannot be used for making cacao butter, but I doubt the correctness of the assertion. Seeds with a glossy surface are frequently found among the Cayenne cacao.

9. *Jamaica, or Island Cacao; Cacao des Isles, West India Cacao*.—Under this name is comprised all the cacao coming from the West India Islands. It is less valued than that from the continent, and considered about equal to Cayenne. It is distinguished by the various colors of the shells. Sometimes they are of a beautiful light brown, then a handsome red, now a flesh color, then grayish or blackish. The dark-colored seeds are generally

flat, and their kernel has a sharp bitter taste; the lighter ones are mostly rounder, and of a better taste. Cacao of Hayti is, known by its rounded seeds, and is preferable to that of Martinique and Guadaloupe, whose seeds are elongated, flat and meagre. But external appearance does not always decide, and sometimes the latter sorts are preferred to the cacao of Hayti. Although West India cacao, on an average, is worse than others, yet, on account of its low price, and because its sharp and bitter taste can be covered by sugar, it is frequently bought and mixed with better sorts used for making chocolate.

10. *Bourbon Cacao; Cacao of the Island of Bourbon.*—This, which made its appearance in the market about forty years ago, is somewhat similar to the Caracas cacao, although the seeds are smaller. There are two sorts from Bourbon, the large and the small seeds; the former are preferred. The shell of both sorts is cinnamon-brown, with dark red spots, fine, thin and easily separated from the kernel. The kernel itself is red, and has an astringent sour, somewhat wine-like taste. By roasting an odor is produced somewhat sour, urinous and foetid; but when the process is completed, the kernels themselves emit a more agreeable smell, and attain a tolerably pleasant taste, for which reason people like to buy them, and frequently use them for chocolate. The seeds of the wild cacao tree are collected but once a year; they are small, oily, and make a very fine chocolate. These were known to the ancient Mexicans by the name of *tlalcacahuatl*.

In addition to the forementioned varieties, there are many others offered for sale in different parts of the world; but in buying cacao we must not rely on the name under which it is offered; and the rules by which good cacao is distinguished from bad, are more necessary and useful to know and be guided by, than the mere name. All good cacao must be free of foreign matter, and well sieved, dry, and not musty, without disagreeable or rancid smell; and it is much better if the seeds are large, full and heavy, of a beautiful, light chestnut-brown, and smooth; and if the kernels separated from the shell are shining and violet brown when broken; of the same color, and not traversed by white streaks; and if their smell is pure and agreeable, and their taste is mild, some-

what bitter, but little astringent, and somewhat fatty. Worm-holes do not always indicate old and damaged merchandize without value, because cacao cannot be preserved good for more than three years, under the most favorable circumstances; and if, in other respects, the article is good, it is still valuable and a merchantable article. The specific gravity of cacao should be about 0.8916. One hundred pounds of seeds yield, according to locality, from seventy to eighty pounds of kernels, and twenty to thirty pounds of shells. The principal chemical constituents of the seeds are, a solid fat, (cacao butter) a bitter extractive matter, somewhat similar to caffein, cacao red, albumen, pituite, (mucilage) starch and fibrin. The seeds yield from fifty to sixty per cent. of cacao oil or solid fat. The chemistry of the subject will be fully elucidated before the Association at their next meeting. Among the numerous species of cacao decribed by authors, the two following merit a short notice before closing: 1. *Theobroma Guazuma* L., *Guazuma ulmifolia* Lam., *Theobroma guianense*, Wild. Guiana cacao tree. Leaves oval, elongated, pointed, repand, dentate; on the lower side, felt-like. The blossoms spring up fascicular, 4-8 on the stem and on the branches; the yellowish petals terminate in a roundish, heart-shaped, pointed lamina. The fruits are oval, quinquangular, $4\frac{1}{2}$ inches long, brownish, with a felty covering. It is supposed that this tree yields the seeds with a pointed end, shining and smooth shell, which are found amongst Cayenne cacao. In Guiana there is made from the pulp, by fermentation, a drink of a wine-like, somewhat sour taste, and by distilling, a spirituous liquor of an agreeable taste. 2. *Theobroma bicolor*. Humb. et Bonp. Plant Equinoct. Leaves elongated, pointed at the bottom; obliquely heart-shaped; whole-edged; the upper side is bald; the lower side is covered with a fine, white felt, and has seven strings. A tree in Columbia and Brazil, especially in the warm valleys of New Granada, 18 feet high, with distant branches, of which the younger ones, as well as the stems of the leaves and blossoms, are covered with a fine, whitish felt. Leaves 8-10 inches long, 3 inches broad, on stems almost one inch long, which are thickest at the ends. The cymes do not stand in the axilla, but a little above; are small, but a little longer than the leaf stems, and have few blossoms. The bracts very small,

lanceolate, awl-shaped. The sepals lanceolate, oval, pointed, of a greenish purple. The petals purple; for the rest, exactly like those of the next species,* but with a roundish and whole-edged lamina. The fruit roundish, oval, with 5 grooves; 6 inches long and 5 inches across; lacunose; covered with silky hair; filled with a yellow, savory pulp. Seeds smaller and less savory than those of *Theobroma cacao*. They are used exactly like cacao, and are found in commerce among what is called Caracas cacao.

The following observations in regard to the above species, by Humboldt and Bonpland, is translated from the French edition of their great work on Equinoctial Plants. The native country of this new species of cacao is the Province of Choco in the kingdom of New Granada.† It grows in the hot valleys, and forms almost whole forests. *Theobroma bicolor* is now cultivated at Cartago, a small town at the foot of the Andes of Quindiu, in the beautiful and fertile valley of Cauca. The inhabitants of this place call it by the name of Bacao, and mix the seeds in the proportion of one to three with those of the *theobroma cacao*, to make chocolate. The capsules, being of a woody texture, are used to make cups, goblets, and other things. The chocolate made exclusively from the seeds of the *theobroma bicolor*, is not very agreeable; it is necessary to mix it with the seeds of the common cacao. It would be, no doubt, useful to multiply this new species, as well on account of the excellence of its fruits, as on account of the beauty of its leaves; and I do not doubt but that it would give to the colonists a new branch of a very useful trade, for it is to be presumed that its fruits would become better by cultivation.

[NOTE.—Dr. Donnelly proposes to continue this paper, which has been curtailed for want of the necessary time, in a communication to the meeting in St. Louis in 1861.]

† Republic of New Granada.

* *Theobroma cacao*.

VOLUNTEER REPORTS AND ESSAYS

ON SCIENTIFIC SUBJECTS.

REMARKS ON MANUFACTURING PHARMACY.

BY JOHN FABER, OF NEW YORK.

Gentlemen of the Association :—

Before giving you my subject I find it necessary to cite you some remarks of one of our most distinguished members upon the subject of Practical Pharmacy, made at one of our former meetings. He says :

“ There are many preparations which may be advantageously made on a large scale, but such are the exceptions, and not the rule. It certainly should be the pride, as it is the duty, of the Pharmaceutist, to make for himself all those important, though often not permanent, preparations which are termed Galenical. * * ”

“ How easily may a worthless extract be palmed off on the apothecary, and how utterly impossible often it is, from known data, for a tincture or fluid extract to be detected when of deficient strength, or when prepared of drugs of inferior quality.”

“ If the preparation of medicines is taken from the apothecary, his business is shorn of half its dignity and importance. * * * ”

“ How can an apothecary properly educate his apprentices, unless he affords to them an opportunity to make the medicines they dispense ? ”

On another occasion he expresses himself as follows :

“ It often happens that the beginner does not enjoy the privilege of a friend at his side, to explain difficulties, and the employers are sometimes as ignorant in these regards as the apprentice himself.”

"It is for want of this kind of training, that so many drug clerks are found illy qualified to take charge of a store; they are not equal to the numerous occasions where discretion and judgment are required; and after going from one employer to another, either abandon the business in disgust, or settle down into a second-rate position as confirmed underlings."

I have often questioned myself as to the reason of this indifference to practice pharmacy in our stores, and after due reflection and inquiries came to the conclusion that the prevailing opinion exists, that it takes too much time and does not pay to make preparations, and that it takes too much apparatus to make them.

It was with a view to correct this opinion that I have sent a series of Pharmaceutical preparations, as I prepare and daily dispense them at my store, on exhibition to our meeting, to have them examined by our committee, whether they come up to the standard of the Dispensatory.

I now beg leave to show that it is remunerative, and attended with the most beneficial results, to make preparations. As to the fluid extracts, every, even the smallest drug store, has the necessary apparatus, in a mortar or a mill and a sieve, which is sufficient for the quantity of drug upon which we operate, to reduce it to the necessary degree of fineness; one or more percolators are also met with in every drug store, which is all that is wanted to warrant, by proper manipulation, the perfect exhaustion of the drug.

For the condensation, a primitive water bath, that is, an evaporating dish set on a vessel containing the boiling water, answers the purpose. Thus I calculate my expense on fluid extracts as follows: the price of one pound of the drug, the price of alcohol, sugar, fuel. According to this calculation it cost me to prepare

1lb Ext. Buchu, fluid.		1lb. Ext. Rhei fluid, E. I.	
1 lb. Buchu	90	1 lb. E. I. Rhubarb	75
1 quart Alcohol	12	1 quart Alcohol	12
Fuel	6	$\frac{1}{2}$ lb. of Sugar	5
		Fuel	6
Summa	\$1.08	Summa	\$0.98

1 lb. <i>Ext. Ergotæ, fluid.</i>		1 lb. <i>Ext. Prun. Virg. fluid.</i>	
1 lb. Ergot	\$1.25	1 lb. Wild Cherry Bark	12
1 quart Alcohol	12	1 quart Alcohol	12
Acetic Acid	1	4 oz. Almonds	8
Fuel	6	12 oz. Sugar	9
\$1.44		\$0.41	

Ext. Senn. fluid, 47 cents. *Extr. Anthem. nobil.* \$1.11.
Valerian, 43 cents.

The far greater advantage we have is, that we operate with a select stock. We do not buy in large packages, which contain always a large proportion of refuse, and can confidently rely upon the preparation, which we dispense.

But far more remunerative is the preparation of smaller chemicals. Considering that we use about 3 oz. of nails or iron wire, 18 oz. of muriatic acid, and about $1\frac{1}{2}$ oz. nitric acid, to obtain nearly 1 lb. of liquor of sesquichloride of iron, and about the same proportions of iron, sulphuric and nitric acids, to obtain the same amount of liquor of persulphate of iron. That one ounce of sulphate of quinine, at \$1.70, with $1\frac{1}{2}$ oz. of tannin, at 37 cents, gives us full 2 ounces of tannate of quinine; this together with the sometimes interesting and beautiful phenomena, accompanying chemical reaction, form a sufficient inducement for home manufacture.

But the most beneficial result will be the scientific improvement of our assistants.

There is no study without practical application going hand in hand with it. A theoretical study is almost devoid of interest to the young pharmacist, who is kept on the go constantly; but if he makes a preparation about which he has read, it increases his interest; he makes practical observations, he is sometimes hemmed by difficulties, to overcome which he is forced to consult his scientific works, and thus stimulated by ambition, the study will cease to be dry and devoid of interest to him, and the result will be that we shall have, in course of time, assistants to whom we can unhesitatingly intrust the responsible part of our business.

ON NARCOTIC FLUID EXTRACTS.

BY JOHN. M. MAISCH, OF PHILADELPHIA.

The subject of Fluid Extracts has been frequently discussed for some years past. It is with some reluctance that I again refer to this matter; but the conviction that preparations of narcotic plants claim the utmost care of the pharmacist, has induced me to lay my views concerning one class of them before the Association.

Every one is aware that the medicinal properties of plants are greatly influenced by the climate, the soil, the meteorological conditions during their growth, the time of their collection, the manner of drying, the mode of preserving, and the age of the dried plants. There are, as yet, scarcely any comparative analyses of plants, grown or kept under different circumstances. The therapeutical action of medicinal plants is the criterion relied on by the intelligent practitioner. Attention is drawn to this fact by medical writers; in the place of many, may the authority of Pereira suffice, who states, in his *Elements of Materia Medica*, (3d Amer. edit. p. 164,) "Vegetables have their medicinal properties considerably modified by the nature of the soil in which they grow, by climate, by cultivation, by age and by the season of the year when gathered."

Of all the conditions requisite for the development and preservation of the activity of medicinal plants, the manner of keeping them is, in many cases, the only one resting with us; in other instances, however, likewise the time of collecting and mode of drying them. To overcome, in some measure, the difference occasioned by natural causes, laws have been enacted in some European countries, stipulating that the indigenous plants used in medicine must be uncultivated, collected in the proper season, and neither starved nor uncommonly developed specimens. Thereby they are supposed to be rendered more uniform in quality; but those who are in the habit of preparing their own extracts will have observed, that even while complying with the above rules, the amount of extract yielded by the same process from plants collected in different years, varies sometimes very materially; the plants secrete more or less soluble matter, and consequently a larger or smaller amount of their active principles.

This fact has long since attracted the attention of pharmacologists, and the desire to overcome, as much as possible, these inequalities, has resulted in the recommendation, by Dr. F. Mohr, of a process for solid narcotic extracts, which removes albuminous substances by heat; chlorophyll, waxy and resinous matter by water; and gum, mucilage, &c., by alcohol; thus leaving chiefly the really valuable constituents to make up the extract, which is obtained of a greater uniformity, and consequently of more reliability. The process, which has been adopted in the Prussian, Bavarian, and other Pharmacopœias, was brought to the notice of the Association by my friend S. S. Garrigues, in 1856.

It is well known that on account of the real or supposed variability of the narcotic extracts of American manufacture, some physicians are in the habit of ordering English Extracts. I may remark here, incidentally, that, some time ago, I had occasion to examine samples of extracts of aconite, belladonna, conium and hyoscyamus, sold and used as English, and found them to contain between 13 and 17 per cent. of matter insoluble in water and diluted alcohol; while I know of American extracts of the same plants which are almost entirely soluble in those menstrua. This fact would certainly prove that we are not behind hand in the manufacture of these important preparations.

We would regard such concentrated preparations as perfect if they contained *only* the medicinally active principles; their isolation and subsequent recombination would give us in an invariable weight; or, when in solution, in a definite measure the activity of a certain weight of the plant. With our present state of knowledge, however, such a process is in all cases impossible. It remains for us, then, to choose one which, though without the same claim to perfection, will approach it nearer than any other. A truly rational process must yield, from comparatively poor plants, extracts of about the same activity as from the best, just as morphia, for instance, or any other alkaloid, will possess the same strength, whether it be prepared from opium containing 5 or yielding 16 per cent. of it.

What is true for the extracts will likewise hold good for the fluid extracts. The manner in which these latter are prepared, viz.: one fluid ounce representing the virtues of one ounce of the

dried material, is, undoubtedly, an excellent one, and will answer in all those cases where the effects produced upon the human system are not greatly intensified by a slight increase, or materially diminished by a small decrease in the dose, or by some natural variation in the strength of the plant. Our vegetable cathartics, expectorants, astringents, tonics &c., are, for this reason, well adapted for such fluid extracts. But it is different with the narcotics.

It is not my province to prove the danger which might result from a dose of a narcotic preparation containing double the amount of the alkaloid, than another sample obtained from another source. I am aware that the same objection might be urged against tinctures, decoctions and infusions; and I must confess, that I cannot, by any means, regard these preparations as the ideal of perfection. Besides their liquid state, they have little in advance of the crudest of all forms—the powdered drug—to pride themselves of, as far as uniformity and reliability of action are concerned.

Not the smallness of the dose alone has brought the vegetable alkaloids into such extensive use, but also the certainty with which their action upon the human frame may be relied on. I have known physicians who would not prescribe sulphate of quinia, except as the effloresced salt, or that dried at 212° , and who would not employ acetate of morphia, but preferred to order the pure alkaloid, to be dissolved in acetic acid. This may, perhaps, be considered as over nice, until we come to inquire into the variability of the amount of water and acid in these and other cases.

The possibility of fixing the exact dose is the great advantage possessed by definite chemical compounds; and the nearer we arrive at them with our pharmaceutical preparations, the greater will be their perfection. This idea, I believe, occupied the mind of our fellow-member, Dr. Squibb, when he worked out the formula for his *Liquor Opii Compositus*.

Without reference to the quantity of opium, the same amount of morphia, its principal active agent, insures about the same amount of the other medicinal principles; and viewed in this light, that proposition, made some years ago, to require in tincture of

opium a certain percentage of morphia, ought to have received the attention of the medical and pharmaceutical profession. If it was possible to estimate reliably the amount of the vegetable alkaloids contained in the narcotic herbs, a process similar to Dr. Squibb's would be advisable for all pharmaceutical preparations made therefrom. That we shall ultimately arrive at this end, I have no doubt; but as matters now stand, let us adopt a plan by which we may at least *approach* uniformity.

The outlines of such a plan appear to me to be as follows:

1. The solid narcotic extracts are to be prepared by a process by which, if possible, everything inert is rejected, and all the medicinal principles are preserved.

2. The fluid extracts are to be prepared from the solid extracts, by first evaporating off all the water by means of a water-bath, and afterwards dissolving them in the proper menstruum.

If we consider that good narcotic herbs yield, on an average, between 10 and 20 per cent. of dry extract, we might make the fluid extracts in such a manner that 5 minims would represent one grain of anhydrous extract, which would be equivalent to about 5 grains of the powdered plant. The fluid extracts of belladonna and hyoscyamus upon the table, have been prepared in this manner; they are preserved by sugar, and contain only such principles of these narcotic plants that are soluble both in alcohol and water. If the extracts have been properly prepared, they will yield a clear solution with sugar and water, and straining will not be necessary.

OBSERVATIONS ON DICAS' LIVERPOOL HYDROMETER.

BY WILSON H. PILE, M. D., OF PHILADELPHIA.

The observations which I here present to the Association, have been made to supply a want of information in regard to an instrument long used by the United States revenue department, and by several of the individual States, in the inspection of liquors. I refer to Dicas' Liverpool Hydrometer for ascertaining the various, so-called, proofs or mixtures of alcohol and water. Although this

hydrometer has long been discarded by the United States, and Tralles' alcoholometer, indicating per centage, substituted for it, as giving more positive information, yet, in Pennsylvania, at least, the old Dicas hydrometer is still employed. By act of 1835, it was there determined that a liquor indicating 0° , or proof on the Dicas scale, should be marked as liquor of the fourth proof; if five degrees below proof, as liquor of the third proof; if ten degrees below proof, as liquor of the second proof; and if fifteen degrees below, as liquor of the first proof. There were, however, no data given by which the instrument itself could be inspected or errors detected. In this country these hydrometers were made by Mr. Fisher, who merely copied after the original, and since that time by his successors in Philadelphia, who still retain the same Dicas instrument as the standard, with which to compare and regulate all the instruments made by them.

Without going into any explanatory remarks respecting the terms over or under proof, (which can be found in Ure's or Booth's Chemical Dictionary,) I will state that the data or information which is necessary, in order to check an error in any hydrometer, either incorrectly made, fraudulently altered or unintentionally deranged, is simply to know the specific gravities of the various degrees or divisions of its scale. A table of this kind being given, it becomes easy for any one to satisfy himself of the accuracy of the instrument.

As I not have been able to find any published table, I have endeavored to supply the deficiency by calculating the annexed tables from original observations made with one of Dicas' hydrometers, and verified by means of the specific gravity bottle. With the specific gravities thus ascertained, I have graduated alcoholometers to show directly the various proofs and degrees above or below proof, by simple inspection.

It will be seen by these tables that the proof liquor of Dicas (or fourth proof, Penn.) has a specific gravity of .9190 indicating by Tralles,

57.60 p. c. of alc. by vol.

3d proof,	= .9249 sp. gr. or	54.70	"	"	"	"
2d "	= .9305	"	"	51.95	"	"
1st "	= .9360	"	"	49.16	"	"

Examination of a Dicas' hydrometer, made by Albert Engle, successor to Fisher, of Philadelphia, Box No. 1289.

This instrument has been very carefully kept, and used solely as a standard with which to compare others in continual use.

In order to obtain the specific gravities of the various proofs, three steps are necessary. First, to ascertain the specific gravities corresponding to the various counterpoise weights, thirty-six in number, accompanying the box. (See table 1.) Second, to read off and arrange the indications of the hydrometer opposite the proofs on the sliding scale, the index being placed at 60° F., (1st column of table 2d.) Third, to calculate the specific gravities of these latter indications by means of table 1, (3d column of table 2d.)

The weight of this hydrometer, without any counterpoise, was 422.12 grs., and in order to sink it in distilled water at 60° F., to the zero mark on the stem, an additional weight of 103.53 grs. placed on the top of the stem was requisite. Now, according to the well known law of hydrostatics, as floating bodies displace a quantity of the liquid in which they float, equal to their whole weight, it follows that the weight of water, of the bulk of this hydrometer up to its zero point is $(422.12 + 103.53) 525.65$ grs. It also follows that when floating to the same point in a liquid of any other density, the weight required to be placed on the instrument, added to the weight of the instrument itself, will give the weight of a bulk of that liquid, equalling 525.65 grs. of water. Therefore the specific gravity of this liquid, as compared with water, would be found by dividing its weight by the weight of the water.

An example will illustrate this method :

Suppose, as in this case, that with the counterpoise marked No. 100, placed on the stem of the hydrometer, it would float at the zero point in a certain liquid. This counterpoise weighs 73.55 grs. ; add to this the weight of the hydrometer ($73.55 + 422.12$) and we have 495.67 grains as the absolute weight of the liquid ; and its specific gravity $(495.67 \div 525.65) .9429$ water being considered as 1.

In a similar way the specific gravities corresponding to all the counterpoise weight were calculated, and from these, the specific gravities of the proofs as before stated.

TABLE I.

* Number of Counterpoise.	Corresponding spec. grav. at 60° F.	Number of Counterpoise.	Corresponding spec. grav. at 60° F.
0	1.0000	190	.8944
10	.9939	200	.8892
20	.9882	210	.8840
30	.9825	220	.8788
40	.9768	230	.8736
50	.9711	240	.8684
60	.9654	250	.8633
70	.9597	260	.8582
80	.9540	270	.8532
90	.9484	280	.8482
100	.9428	290	.8432
110	.9373	300	.8382
120	.9318	310	.8332
130	.9264	320	.8282
140	.9210	330	.8232
150	.9156	340	.8183
160	.9102	350	.8134
170	.9049	without weight }	.8030
180	.8996		

* By this is meant that when the Hydrometer is loaded successively with weights of these numbers, it will float at the zero point of the stem in liquids of the densities given opposite.

TABLE II.

Indication On scale Index at 60° F.	Degrees below Proof.	Corresponding Spec. grav. at 60° F.	Indication on scale, Index at 60° F.	Degrees above Proof.	Corresponding spec. grav. at 60° F.
1.7	100	1.0000	143.8	Pr. 0 or 4th pr.	.9190
9.1	95	.9945	155.3	5	.9127
15.6	90	.9907	167.3	10	.9063
21.8	85	.9872	180.0	15	.8996
27.6	80	.9839	193.3	20	.8927
33.0	75	.9808	207.1	25	.8855
38.2	70	.9778	221.5	30	.8780
43.1	65	.9750	236.5	35	.8702
48.0	60	.9722	252.2	40	.8621
53.2	55	.9693	268.5	45	.8540
58.7	50	.9661	285.5	50	.8455
64.5	45	.9628	303.6	55	.8364
70.7	40	.9593	323.0	60	.8267
77.6	35	.9554	344.2	65	.8162
85.3	30	.9510	351.0	{ Marked Alcohol on scale. }	.8129
93.8	25	.9463			
102.8	20	.9413			
112.3	15 or 1st pr.	.9360			
122.3	10 or 2d pr.	.9305			
132.8	5 or 3d pr.	.9249			

ON HYDROBROMIC ACID.

BY JOHN M. MAISCH, OF PHILADELPHIA.

Having repeatedly had occasion to prepare hydrobromic acid, I embraced the opportunity to try various processes, recommended at different times by several chemists. The results of my observations I proceed to lay before the Association.

Glover's process consists in decomposing a solution of bromide of barium by diluted sulphuric acid; if sufficient care is bestowed upon it, there is no great difficulty in obtaining the acid free, from both sulphuric acid and baryta. If distillation is resorted to, a very slight excess of sulphuric acid is advisable. The result is a good one, but the process is inconvenient, as it renders necessary the previous preparation of bromide of barium.

Loewig recommended to distil four parts of bromide of potassium with three parts of sulphuric acid and forty-eight parts of water; various inconveniences are connected with this process. In the first place, the quantity of water is too large; the first portions of the distillate contain no acid and do not redden litmus paper; gradually as the liquid in the retort becomes more concentrated, the acid makes its appearance among the vapors, until towards the close of the process the main part of the hydrobromic acid distills over. Now, however, another inconvenience arises; owing to the separation of sulphate of potassa, a violent bumping takes place, which endangers the safety of the retort. The quantity of sulphuric acid directed shows that the formation of bisulphate of potassa is intended, for which, however, there is a deficiency of 0.40 parts HO , SO_3 . If this amount is added to the contents of the retort the concussions are materially diminished, so that the distillation may with greater safety be continued. But a reaction takes place between the concentrated sulphuric and the hydrobromic acids, resulting in sulphurous acid and bromine, both contaminating the distillate. The quantity of these impurities will be lessened with a decrease of the sulphuric acid. Balard first took notice of this fact, and also made the observation, that the gaseous acid prepared from the same materials in the proportion mentioned, omitting the water,

is obtained purer in proportion to an increase in the size of the crystals of bromide of potassium.

When bromine, diffused in water, is treated with gaseous hydrosulphuric acid, as recommended by Balard, the product contains sulphurous acid, which, according to Loewig, is due to the formation of bromide of sulphur and its subsequent decomposition by water.

Millon uses a mixture of 1 p. phosphorus, 12.5 p. bromine, 7.8 p. bromide of potassium, and a small quantity of water; he directs the mixture to be heated, but I have found the reaction entirely too violent even without the external application of heat. If some precautions are adopted, the process is a good one, and I shall speak of it again hereafter.

This last process is a modification of the one originally suggested by Balard, to carry out which Loewig directs to add to the phosphorus immersed in water, the bromine in small quantities at a time, in order to avoid too violent a disengagement of heat, and to continue the addition of bromine until the whole of the phosphorus has disappeared, (Gmelin's Chemistry, Cavendish edit. ii. 281). After each addition of bromine sufficient heat will be generated to keep the phosphorus in a state of fusion, and the reaction is sometimes so sudden and violent as to throw small portions of it above the water, where they burn in the atmosphere, composed of aqueous vapors, hydrobromic acid and bromine. Notwithstanding this great affinity of the two elements, the liquid has a brown color from containing some free bromine in solution, which increases in quantity with the hydrobromic acid contained in the mixture, probably forming therewith hydrobromous acid, H Br_2 . This solution is not so readily acted on by phosphorus, for the complete solution of the latter requires a considerable excess of bromine, particularly if the water in the mixture has been unnecessarily increased. It is better, therefore, to have both the elements weighed out in the equivalent proportion, namely 1 part of phosphorus and 12.5 parts of bromine, the last of which is about .16 parts less than the equivalent weights require.

I have worked with the following apparatus, which I have found to answer very well: a funnel tube is fitted into the tubulus

of a retort capable of holding at least double the amount of all the materials; the retort is placed with the neck pointing upwards, and connected with an empty receiver by means of a glass tube, which is cut off just below the cork; a second glass tube, commencing near the bottom, connects this receiver with another one of the same capacity—any ordinary bottles will answer—and dips into a little distilled water, both receivers being kept cool by ice or some other means.

The phosphorus is first introduced into the retort, together with six or eight parts of water, or more if desired; the bromine must be added only in small portions at a time through the funnel tube, which is immediately afterwards covered with a glass plate. The apparatus is soon filled with white vapors of hydrobromic acid, mixed sometimes with free bromine. The vapors are partly condensed in the neck of the retort and run back; they partly condense in the first receiver, while the last portions are absorbed by the water in the second bottle. This liquid will commence to rise in the tube, when the reaction has subsided, and more bromine must now be added. This is continued from time to time until the whole has been used.

The first receiver generally contains some free bromine, beside some hydrobromic acid; the liquor in the last receiver will mostly be colorless, if the condensed liquor from the first one has not been forced over through the connecting tube. If colorless, it is set aside and employed as the absorbing liquid in the next part of the process; if colored, it is, together with the contents of the first receiver, added to the residue in the retort, and the whole apparatus is then set aside, if possible, in the direct sunlight. The retort now contains phosphorus, bromine, phosphoric and hydrobromic acids. When it has become colorless after exposure to the light and occasional agitation, the bromine has been converted into hydrobromic acid.

The next step is the distillation of the hydrobromic acid, previous to which, however, every trace of uncombined phosphorus is to be removed. The neck of the retort is inclined, and the glass tube, after the first receiver has been disconnected, is made to dip into a small quantity of distilled water, or into the liquid

employed during the first part of the process, if it was colorless and had not to be subjected to another distillation. Heat is applied, and the distillation continued to near dryness, or until the residue ceases to liberate bromine, when a drop is added to a little chlorine water. The residue constitutes pure phosphoric acid.

In this process, pentabromide of phosphorus is first formed, which decomposes water when coming into contact with it, yielding phosphoric and hydrobromic acids. Inasmuch as concentrated phosphoric acid is apt to gradually destroy the retorts, it will be well to add, after the undissolved phosphorus has been removed, 5.9 parts of bromide of potassium, and distil to dryness. As the solution in the retort becomes concentrated by distilling off the liquid, a double decomposition is effected, resulting in the so-called neutral phosphate of potassa, $2\text{K}_2\text{O}$, H_2O , P_2O_5 and hydrobromic acid, the former of which is very soluble in water, and does not in the least impede the process. When the concussions are observed, the fire is to be removed and the tubulure opened, the salt becomes solid, and may by dissolving in water and evaporating in a capsule be obtained in a dry state; it is a pure phosphate if the phosphorus did not contain any impurities.

The 5.9 parts of bromide of potassium increase the 12.5 parts of bromine, to 16.5 parts, and thereby the strength of the resulting acid may be calculated. Weighing out the above parts in drachms, I have diluted the acid obtained to 16 fluid-ounces, so that each fluid ounce contains rather more than one drachm of hydrobromic acid.

Before concluding, I will draw attention to the precaution, never to add the phosphorus to the bromine, inasmuch as the affinity of both elements is so great that the phosphorus burns in the vapors of the bromine, causing violent explosions which may shatter the apparatus to atoms. By proceeding in the manner described by me, there is no danger connected with the operation, and the only annoyance is caused by the volatilization of a little bromine, while pouring it into the retort.

ON THE CULTURE OF BENNE AS AN AGRICULTURAL PRODUCT.

BY EDWARD PARRISH.

The Benne Plant (*Sesamum orientale*) is believed to be a native of Africa, whence it was probably brought to the United States by the negroes. A few plants now in their bloom are exhibited to the Association through the kindness of Frederick Brown, Esq., who cultivates them in his garden, at Burlington, New Jersey.

This plant flourishes admirably in our climate, and is adapted to a very dry sandy soil, such as abounds in many sections of the United States; it is, indeed, said to flourish where scarcely any other crop will grow, and in land of only moderate richness; it requires no manure. The seeds are sown in drills about three or four feet apart according to the strength of the land and mode of cultivating; thinned to twelve inches or more on the drill, and barely kept clean of weeds and grass; not much earthing up is required. They can be sown just after frost; in the Southern Gulf States they are planted from first of April till June.

My friend J. A. M. King, of Savannah, Georgia, from whom these facts are obtained, is of opinion that this plant would richly repay for planting in many localities where the land is allowed to be idle, because unfit for other crops. He thinks one merit of this crop would be its requiring so little stirring of the soil, exposing it to the sun and rains which he thinks one great cause of sandy soil losing consistence or body, besides by its leafy and leguminous character, the Benne enriches the soil in its decay.

The yield of seed is quite large, returning twenty bushels to the acre, but the harvest is very wasteful, though easy, as usually managed by the negroes, who chiefly cultivate it on their own account. In the fall when the leaves have dropped off, which happens before the legume expands, the stalks are cut and bound in sheaves and stacked up in the field to dry, when, after a few days, they are simply shaken over a large sheet spread out in the field. Rain does not rot the seed, as it passes with facility through the pods, wasting a portion; after winnowing, the seed are ready for sacking. A sample is shown to the Association.

As is well known, the chief use of this seed is as a source of oil, and in order to ascertain the yield of oil from a sample grown in Georgia, of which those now on exhibition are a part, three bushels of them were submitted to the action of a linseed oil mill, and nine and a half gallons of oil like the samples here shown were obtained. From these data it will be seen that this is among the cheapest of the fixed oils and must become a popular substitute for some others, if introduced. In regard to its properties, I have no new facts to offer; it appears to be bland and nearly colorless, though not free from the odor and taste of the seed. It is the oil of Ben of English commerce.

The negroes are in the habit of roasting these seeds, and infusing them in water to form a drink like coffee, and it is asserted that its narcotic properties are very decided. The cake left after expressing the acid is probably possessed of all the narcotic properties of the seed, and it would soon become an economical question, in case of its production on a large scale, what shall we do with it? If it met the fate of the cotton seed and peanut cakes, it would be mixed in large proportion with the flaxseed cake of commerce, in which form it would find ready purchasers both at home and abroad. I have not spoken of the leaves, which, plucked at the time of their maturity, are very mucilaginous and extensively used in the treatment of summer complaint of children.

MEMOIR OF THE HON. HENRY CAVENDISH.

BY HENRY F. FISH, OF WATERBURY, CONN.

While a large majority of the distinguished chemists of England have sprung from the middle or lower classes of society, but two of the most celebrated, Boyle and Cavendish, were men of illustrious lineage, and Cavendish was much the higher born of the two. While no one could be more indifferent than he was to the external advantages of birth and fortune, yet few of those who place upon these the greatest value, could boast of a descent like his. His family traced their pedigree, by unbroken links, to their ancestor, Lord Chief Justice Cavendish, of the King's Bench, in the reign of Edward III., while their genealogy extended

still further back, to a Norman family famous in the days of the conquest. Cavendish could thus look back, across eight centuries, to the founder of his family through the long interval which elapsed to his own day, could find them famous in the history of their country, and connected by marriage with the most illustrious houses of England and Scotland, not even excepting royalty itself.

Henry Cavendish, the subject of this paper, was the eldest son of Lord Cavendish, by his wife, the Lady Anne Gray, fourth daughter of Henry, Duke of Kent. He was born at Nice, Italy, 10th October, 1731, whither his mother had gone for her health. His mother died when he was two years old, and scarce any thing is known of his earliest years. In 1742, at the age of 11 years, he became a pupil at Dr. Newcome's school, Hackney, where he remained seven years. From thence he went directly to Cambridge, where he matriculated in the first rank, 18th December, 1749. He was now eighteen, and remained at Cambridge four years, nearly the full collegiate time, when he left without taking his degree, owing, as it is supposed, to his unwillingness to submit to the religious tests of the times, then very stringent. His brother, Frederick, entered two years later, and left without his degree, after completing the term of four years. Among Henry's cotemporaries at college were the Duke of Grafton, celebrated by Junius; Gray, the Poet; and Monkland, the Greek critic. After leaving Cambridge, Cavendish went, it is supposed, to London. His personal history is a blank for about ten years, although it cannot be doubted, from his subsequent writings, that it was mainly spent in mathematical and physical studies. He joined the Royal Society in 1760, but did not contribute any thing to its transactions until 1766, when he published his first paper, *factitious airs*. It is, known, however, that during this period he paid a visit to Paris, with his brother Frederick, before Henry became famous. Their intercourse in after life was very slight.

I shall now present a rapid and summary view of Cavendish's scientific labors.

The obscurity which hangs over his early private history renders it impossible to determine the influences that led him to devote himself entirely to one branch of science, rather than

another. His first appearance before the public was as an author on chemistry. It is probable, however, that many of the mathematical and physical essays found among his papers are of an earlier date than his first chemical essay, of 1766; and it would seem that he was able, with the greatest ease, to change his subject of study, and that he was in the constant practice of carrying on together widely dissimilar pursuits. Cavendish did not give to the world his earliest researches. Two lengthy investigations, one chemical, the other physical, were completed and laid aside, ready for publication, before he commenced contributing to the *Transactions of the Royal Society of London*, in which all his papers were published.

The first of those was entitled, *Experiments on Arsenic*, and remains among his papers, both in rudimentary and completed shape. It appears to have been written out for a friend, and the experiments were made as early as 1764. It may suffice to state that the paper in question contains an elaborate inquiry into the differences between *regulus of arsenic* (metallic As.) *white arsenic*, arsenious acid, (As O_3) and *arsenical acid* (As O_6). The properties of *arsenic acid*, and of various of its salts, the arseniates, are described with considerable accuracy. The true nature of the difference between arsenic and its two acids Cavendish did not know; but he held arsenic acid to be more thoroughly deprived of its *phlogiston* than arsenious acid, and the latter to bear a similar relation to metallic arsenic. These phrases are in effect that arsenic acid contains more oxygen than arsenious acid, and the latter more than metallic arsenic, which we now know to be the fact. The paper is otherwise remarkable for its speculations on the nature of the "red-fumes" produced by the action of the air on nitric oxide which attended the action of nitric acid on arsenious acid, and for its discussion of the *theory* of the solution of metals in acids and the reduction of the former by heat and inflammable matter.

About the same time, Cavendish engaged in an extensive series of *Experiments on Heat*. Although written out for a friend, they were not referred to publicly until nineteen years after their completion, when certain results were quoted in a paper published in 1783, *on the congelation of quicksilver*. These

researches are very remarkable, and had they been made public in 1664, they would have given Cavendish chronological precedence to Black, in some of his discoveries, and equality of merit in others. This much is certain, that Cavendish discovered for himself and announced with admirable clearness, the fundamental laws of specific heat, and collected tables of the specific heat of various bodies. Guided by a totally different theory from that of Black's, or latent heat, as with relation to solidity and liquidity, Cavendish investigated for himself the evolution of heat attending the solidification of liquids and the condensation of gases and vapors, and the converse *generation of cold* (as he termed it) which accompanies their liquefaction.

The papers on *factitious airs* consisted of four parts. Three parts, as mentioned, were published by the Royal Society, 1766. The fourth part remained many years among his papers, perfectly complete for publication, and was evidently intended to be read to the Royal Society, but for some reason was withheld. It was published in the British Association Report, 1839. These four papers are occupied with the discussion of the properties of hydrogen, carbonic acid, and the gases evolved during the fermentation, putrefaction and destructive distillation of vegetable and animal matters. They contain the first distinct exposition of the properties of hydrogen, and the first full account of those of carbonic acid, besides investigations into the combining proportion of the latter and the properties of carbonates. They recount the first attempt to determine the differences in density which mark the gases, and suggest the probability of there being several kinds of inflammable air. In 1767, Cavendish published a paper on the *analysis of some London pump water*, remarkable for the calcareous earth it deposited when boiling. He showed that the earth was originally retained in solution by carbonic acid, and probably this was the earliest analysis of one of the bicarbonates. Other constituents of the water were determined also, and the whole research is curious as one of the earliest successful attempts to analyse a natural water.

Thus far Cavendish appears rather as a follower of Black. He struck out, however, in addition, a new path for himself, and added to the solitary fixed air, a second gas equally distinct from

it, and from atmospheric air. This was hydrogen, of which Cavendish can hardly be called the discoverer, as Boyle had, among others, encountered it; but no chemist had carefully examined its properties. There can be little doubt but that many of the older chemists had encountered hydrogen, but none of them had examined it. Cavendish's examination, therefore, has all the interest that attaches to the pursuit of a new investigation.

It is easy to look back from our present well appointed laboratories, with over ninety years of valuable accumulation, and to criticise, if not to ridicule, the results of these early investigations. When we consider how much more genius is necessary to *devise* a new apparatus, than to extend or improve one, and if we further judge the chemist of 1766, not by his successors of the present day, but by his contemporaries, we cannot but assign the very highest rank to Cavendish as a pneumatic chemist. In truth, in modern times, we have done little more than to *confirm* his reasonings and perfect his processes in pneumatic chemistry.

Between the years 1767, and 1783, Cavendish did not appear as an author on any subject directly connected with chemistry, but he continued his chemical investigations. In a paper communicated to Priestly, which he referred to the latter, in the year 1772, there is, probably, the earliest distinct account of the identification of nitrogen. Cavendish prepared it by passing common acid repeatedly through red-hot carbon, removing the carbonic acid gas by caustic potassa. He gave no special name to nitrogen, referring to it generally as *mephitic air*. Nitrogen was afterwards minutely described by Lavoisier, Scheele, and Priestly, under the name of *phlogisticated air*, but there is abundant evidence to the fact that Cavendish was an independent discoverer of nitrogen. For a season after these researches, Cavendish seems to have laid aside chemistry for other departments of science. In 1771, he published the elaborate paper on the *theory of the principal phenomena of electricity* which appeared in the *Philos. Trans.* of that year. In 1776, appeared the curious and interesting accounts of his "*attempts to imitate the effects of the torpedo*." This paper brought to light novel and important conclusions.

The singular powers which the torpedo possessed had been referred, by *Walsh and others*, to its possessing the power of *discharging electricity at will*. In many respects, however, the action was different from that of an electrical apparatus, and some doubted if the benumbing sensation was due to electric phenomena, while others regarded animal electricity as different entirely from that procured from artificial sources. To decide between these disputants was no easy matter, as the torpedo could, at that time, be procured only in the Mediterranean, or other warm seas; nor did the researches of electric science, in 1776, suggest the means of questioning the torpedo as to its own singular powers. Cavendish, accordingly, attacked it in another way. He tried to imitate the effects of the living fish, by a piece of apparatus constructed in imitation of it, placed in connection with a friction electrical machine and a Leyden battery. All doubts as to the identity of the benumbing powers, with common electricity, were removed. Faraday has borne ample testimony to the light which was thrown upon every department of electric inquiry by Cavendish's demonstrations, and in none of his essays does Cavendish appear to greater advantage than in this. Principles in science, propounded by him at that early period, still remain undoubted, and his conclusions rose at once to the dignity of law in science.

In 1776 Cavendish was selected by the Royal Society to describe the meteorological instruments made use of in their apartments. His father, Lord Charles Cavendish, had paid special attention to the improvement of the thermometer and barometer, so that our subject was easily trained in the use of these instruments.

During the year 1777-78, Cavendish commenced his most important chemical researches, styling them *Experiments on Air*. They were carried on, with frequent interruptions, until 1788, and no part of them was published till 1783. They led to the discovery of the constant quantitative composition of the atmosphere, the compound nature of water, and the composition of nitric acid. In 1783, he published his first paper on heat, returning again to the subject in 1788. Of these three papers, all refer to

congelation; the first, to that of quicksilver, the second and third to the mineral acids, and alcohol.

In 1788, Cavendish published his last chemical paper. The opinions of Lavoisier, then rapidly becoming general, diverted chemistry into channels foreign to those into which Cavendish had guided it; and although he regarded the triumphs of the French chemist with composure, as well as with interest, he appears to have been repelled by the new aspect which chemistry was assuming, from engaging further in its prosecution. The universality of his scientific tastes and the serenity of his nature made the silent abandonment of one among the many an easy matter.

His remaining papers refer to meteorology and astronomy. In 1790 he published *An Essay on the height of a remarkable Aurora, seen 1784*. In 1792 an elaborate paper appeared on "*The Civil Year of the Hindoos*." In 1797, he published "*A Method for Reducing Lunar Distances*." In 1798 appeared his celebrated inquiry into the density of the earth—a paper that had rendered him celebrated, even if he had published no other essays. By the use of delicate apparatus, Cavendish made the earth's density to be 5.4; in 1837 Professor Reich carefully repeated the experiments of Cavendish, and confirmed them. At a later period, Baily, after a few years protracted trial made the density 5.0, a little higher than Cavendish had made it; that is to say, the earth was found to be five and a half times heavier than the same bulk of water would be. No greater compliment than this could be paid to Cavendish, after the lapse of so much time, and the vast improvement in apparatus, to have his early statements fully confirmed.

The last paper Cavendish published was on some improvements in astronomical instruments, one year previous to his death, 1809. This is a summary of his essays on chemistry. A large number of papers on various subjects connected with other sciences were found after his decease, and published by the Royal Society. Before closing this sketch of his scientific career, I have time to advert only in brief terms to his most celebrated discovery, the composition of water, and the dispute in

which he (or rather his friends) became involved with Watt, regarding their several claims. I have carefully read the investigation of Dr. Wilson, extending through one hundred pages of matter, and I think no one can rise from its perusal without according to Cavendish priority, probably about two years, in this discovery. The points in dispute may, in the language of Dr. Wilson, be more clearly stated by saying "that to Cavendish belongs the merit of *first* observing and inferring the composition of water, while Lavoisier simplified and perfected his conclusions, and confirmed the whole by analysis."

The concluding events of his life, and his moral and intellectual character, will now be discussed.

In the year 1783 his father died, and Cavendish became free to pursue his own tastes. Much obscurity hangs over his personal history during the thirty years of his life now closed; it would seem that his father had always restricted him to a small annual income, and undoubtedly this fact had much to do with the formation of those habits of strict economy which made him remarkable through his subsequent life. It would seem, however, that Cavendish must have become wealthy previous to the decease of his father.

Dr. Thomas Thomson states "that during his father's lifetime he was kept in narrow circumstances, being allowed an annuity of £500, only, while his apartments were a set of stables fitted up for his own accommodation. It was during this period that he acquired those habits of economy and those singular oddities of character which he ever after exhibited in so singular a manner. At his father's death he was left a very considerable fortune; and an aunt, who died at a later period, bequeathed him a very handsome addition to it; but owing to his fixed habits, it was not in his power to spend even the greater part of his annual income." It is probable that up to the age of about forty, Cavendish's income was only £120 annually. A gentleman who had frequent intercourse with him, at the British Museum, says that he was kept on that income (£120 annually) until he was forty years of age; a senior member of the Royal Society Club who met Cavendish at the Society Dinners, says that for some years

he attended the club regularly, and that he had only five shillings in his pocket to pay for the dinner; not a penny more.

Robert Brown, the celebrated botanist, recently deceased, who was intimately acquainted with Cavendish, says, however, "that Lord Charles Cavendish was not a rich man, and gave his son as much as he could afford; and it would have been singular indeed, if Lord Charles, himself a man of science, had not taken peculiar interest in a son whose tastes were so congenial to his own."

At this period of his life, Cavendish's reputation was wide spread, in spite of his solicitations to prevent any notoriety. He resided at London, near the British Museum. Few visitors were admitted, and those few who gained access, reported that books and apparatus formed the chief furnishing of the house. He had set apart, however, a separate mansion in Dean street, for his library, where he had carefully collected works on science, which he threw open to all engaged in research, and to this house he went, himself, as to a circulating library, signing a formal receipt for any books he took with him.

His favorite residence was a villa at Clapham. It is stated that the whole of the house was occupied as a work shop and laboratory, stuck about with thermometers, barometers, and rain gauges. The hospitalities of such a house could not have been overflowing. He lived comfortably, made no display, and treated his guests always to the same fare,—a leg of mutton. A Fellow of the Royal Society says, "If any one dined with Cavendish, he invariably gave them a leg of mutton,—nothing else." Another Fellow says, "that on one occasion he had four scientific men to dine with him; when his housekeeper came to ask what was to be got for dinner, he said, 'a leg of mutton.' 'Sir, that wont be enough.' 'Well then, get two,' was his reply."

According to ordinary judgments, the life of this great man was without any events worthy of note. But he certainly possessed a marked and interesting character. He was singularly fond of solitude, and was greatly averse to mixing with his fellow men.

Of him Prof. Playfair remarks, after meeting him at the club, "Mr. Cavendish is a member of this meeting; he is of an awkward appearance, and has not much the appearance of a man of

rank. He speaks likewise with great difficulty and hesitation, and very seldom. But the gleams of genius break often through the uncouth exterior. He never speaks but to the purpose, and either brings to the subject some excellent information, or draws some important conclusion. His knowledge is very extensive and accurate; the members of the Royal Society look up to him as of confessedly superior talents, and he appears to be the only one among them who joins together the knowledge of mathematics, chemistry, and experimental philosophy."

. Dr. Thompson adds, "He was shy and bashful to a degree bordering on disease; he could not bear to have any person introduced to him, or to be pointed out as a remarkable man." One Sunday evening he was standing at Sir Joseph Banks', in a crowded room, conversing with Mr. Hatchett, when Dr. Ingenhousz, who had a good deal of pomposity of manner, came up with an Austrian gentleman in his hand, and introduced him formally to Mr. Cavendish. He mentioned the titles and qualifications of his friend, at great length, and said that he had been very anxious to be introduced to a philosopher so profound and so celebrated as Mr. Cavendish. As soon as the Doctor had ceased, his friend began, and assured Mr. Cavendish that his principal reason for coming to London, was to see and converse with one of the greatest ornaments of the age, and one of the most illustrious philosophers that ever existed. To all these speeches Cavendish answered not a word, but stood with his eyes cast down, quite abashed and confounded, at last, spying an opening in the crowd, he darted through it with all possible speed, nor did he stop till he reached his carriage, which drove him directly home."

Sir H. Davy says, "Cavendish was a great man, with extraordinary singularities. His voice was squeaking, his manner nervous, he was afraid of strangers, and seemed, when embarrassed, even to articulate with difficulty. He wore the costume of our grandfathers, was enormously rich, but made no use of his wealth. He gave me once some bits of platina for my experiments, and came to see my results on the decomposition of the alkalis, and seemed to take an interest in them; but he encouraged no intimacy with any one. He lived—latterly—the life of a solitary, came to the club dinner, but received no one at his

house. He was acute, sagacious and profound, and, I think, the most accomplished British philosopher of his time." The following estimate of Cavendish's character is by Lord Brougham: "He was of a most reserved disposition, and peculiarly shy habits. This led to some singularity of manner, which was further increased by a hesitation or difficulty of speech, and a thin shrill voice. He entered diffidently into any conversation, and seemed to dislike being spoken to. He would often leave the place where he was addressed, very abruptly, with a kind of cry or ejaculation, as if scared or disturbed. He hardly ever went into society. I have met him at the meetings of the Royal Society, and at the weekly re-unions of Sir John Banks. I remember the shrill cry he uttered as he shuffled quickly from room to room, seeming to be annoyed if looked at, but sometimes approaching to hear what was passing among others. His face was intelligent and mild, though, from the nervous irritation he seemed to feel, the expression could hardly be called calm."

Mr. W. H. Pepys relates of Mr. Cavendish, "The first time I saw him was at Sir Joseph Banks', at a general meeting of men devoted to science. I was relating to Sir Joseph some experiments that I had been making with the voltaic battery, when I observed an old gentleman in a complete faded violet suit of clothes, and what was then termed a *knocker tailed periwig*, very attentive to what I was describing. When I caught his eye, he retired in great haste, but I soon found he was again listening near me. Upon inquiry, I heard it was Mr. Cavendish, but at the same time was cautioned by Sir Joseph to avoid speaking to him, as he would be offended; if he speaks to you, said Sir Joseph, continue the conversation; he is full of information, particularly as to chemistry. I met him soon after at the Royal Society Club, and sitting very near him, he commenced some inquiry upon what I had said at Sir Joseph's, which showed that he remembered me. His speech was hesitating and excited, but he was very quick of comprehension."

The most remarkable exhibition of his shyness was related to Mr. Tomlinson, by a member of the Royal Society. "I have myself (says this gentleman) seen him (Cavendish) standing a long

while on the landing of Sir Joseph Banks' room, evidently wanting courage to open the door and face the people assembled, nor would he open the door until he heard some one coming up the stairs, and then he was forced to join."

It was generally reported among his cotemporaries that he had a positive dislike to women. He would never see a female servant, and if an unfortunate one ever showed herself, she was immediately dismissed. Lord Brougham says, "he ordered his dinner daily by a note, which he left at a certain hour on the hall table, where the housekeeper was to take it, for he held no communication with his female domestics, from his morbid shyness." The instances of his repugnance to encounter females are numerous. On one occasion, two ladies, who had watched his movements, took a gentleman with them to get a glimpse at him, at a point which he passed every day, with great punctuality. He was in the act of getting over a style, when he saw, to his horror, he was being watched. He never appeared in that road again, and his walks in future were taken in the evening.

The following incident occurred at a meeting of the Royal Society Club: "One morning," says a member, "we observed a very pretty girl looking out from an upper window, on the opposite side of the street, watching the philosophers at dinner. She attracted notice, and one by one got up and mustered round the window to admire her. Cavendish, who thought we were looking at the moon, bustled up to us in his odd way, and when he saw the real object of our study turned away with disgust, and grunted out pshaw!"

Cavendish seems to have been singularly cold in his feelings, and selfish, perhaps, if it is possible for a man to be so negatively. But it must be remembered that his whole time, as well as all his faculties, seem to have been intensely devoted to science. The same indifference that he manifested regarding his widely extended reputation seems to have reigned supreme in his care for money. Mr. Pepys narrates that at one time Mr. Cavendish had a large library in London that needed arrangement. It was proposed to allow a gentlemen, not well off, to live in the house and arrange it. After some time, this gentleman sickened and retired to the country. Mr. Cavendish, dining one day at the

club, some one mentioned his name, when Mr. Cavendish said, "Ah! poor fellow; how does he do, how does he get on?" "I fear very illy," says the gentleman. "I am sorry for it," said Mr. Cavendish. "We had hopes you would have done something for him, sir." "Me, me, me, what could I do?" "A little annuity for his life; his health is poor." "Well, well, well, a check for £10,000, would that do?" "Oh, sir, amply sufficient." Yet, on another occasion, Sir H. Davy incidentally appealed to him vainly for aid in his experiments, merely, as is surmised, through failure of Mr. Cavendish apprehending that any money was needed in the case.

A singular occurrence, well attested, will illustrate his indifference to money. His bankers, looking over his accounts, found that he had in their hands some £80,000, and one of them said that he did not think it right that such a sum should lie without investment. He was therefore commissioned to wait upon Mr. Cavendish, then residing at Clapham. Upon arriving at his house, he desired to see Mr. Cavendish. "What is your business with him," said the servant. The banker did not choose to tell. The servant then said, "you must wait till my master rings the bell, and I will inform him." In a few minutes the bell rang, and the banker overheard the conversation. "Sir, there is a person below, who wants to see you." "Who is he? who is he? what does he want with me?"

"He says he is your banker and must speak to you." Mr. Cavendish, in great agitation, desires he may be sent up; and before he enters the room, cries out, "What do you come here for? what do you want with me?"

"Sir, I thought it proper to wait upon you, as we have a very large balance in hand of yours, and wish your orders regarding it."

"If it is any trouble to you, I will take it out of your hands. Do you come here to plague me?" "Not the least trouble to us, sir, not the least, but we thought you might like some of it to be invested."

"Well, well, what do you want to do?"

"Perhaps you would like to have £50,000 invested." "Do so, and don't come here and trouble me, or I will remove it."

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Notwithstanding the general impression that Cavendish was a misanthrope and a woman-hater, there are evidences in his letters showing many gleams of a spirit of human sympathy, and on one occasion he was known to have rescued a lady from the attacks of a mad cow.

To objects of common regard, such as excite or gratify the imagination or the fancy, he seems to have been mainly indifferent. He was indifferent to elegance of form even in his apparatus. Provided it was accurately made or adjusted, he cared for little else; but he insisted on accuracy. The same disregard to mere appearances was shown in his laboratory. A lady of rank, the Duchess of Gordon, on paying Cavendish a visit at Clapham, saw in one of his rooms a long row of utensils not intended to meet the eye, and on expressing surprise at their number and arrangement, was hurried by without any explanation. They were employed in crystallization.

The religious opinions or faith of this distinguished man have been sharply discussed. But there seems really to be very little room for discussion of any kind. Whatever may have been his opinions, they never led him to any open confession of religious faith. It has been asserted that he never was known to attend any church. The only service in which he is known to have taken a part, was at the christening of some of the younger branches of his family. Practically, all days seem to him to have been alike. The most important of his experiments on the composition of water were made on Sunday, and in his journals, all days of the week contain his geological or meteorological observations. The accounts of his closing hours are singularly illustrative of his most striking peculiarities. Of these accounts, the most faithful seems to be that given by Sir Everard Home, who was an eye witness of the scene. The substance of the account is, that Cavendish sent his servant out of the house, ordering him not to come near him till night, *as he had something particular to engage his thoughts*, and did not wish to be disturbed by any one. The servant, who believed his master to be dying, summoned Sir Everard Home, who immediately hastened to Clapham. He found Cavendish in bed, very much exhausted, and apparently in a dying state. Mr. Cavendish seemed surprised to see him there,

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and said that Sir E. could be of no use to him, for that he was in a dying state; and blamed his servant for bringing Sir E. down, for that, at eighty years of age, he thought any prolonging of life would merely prolong his miseries. Sir E. insisted on remaining with him through the night. The patient remained tranquil, and toward morning departed this life.

These various accounts that I have spoken of do not, any of them, deny the strong desire Cavendish had to be alone, and undisturbed. There can be no doubt but that these last silent hours were spent by him in preparation for that final change which he rather welcomed than avoided. I know very well that the mass of mankind are very prone to distinguish those men who make no outward noisy show of their religion, as men either of no religious character whatever, or as something worse. But to a man of the taciturn habits of Cavendish, any display, or indeed, any confidence, on a subject so immediately between himself and his God, must have been extremely repugnant. Rather let us measure the depth and capacity of his religious faith, whatever it was, by the simple unostentatious routine of his daily life, and by the grandeur of his discoveries, unfolding natural laws. If these constitute any claims to our charitable regard, who shall match with Cavendish, *whose life*, "all," in the language of the Psalmist, "that a man hath," was devoted day by day to magnifying the works of God?

The summary of such a character as that of Cavendish, may be variously stated, as one is influenced by his moral qualities. So far as we can judge from any external acts, he seems to have been passionless. While there appears nothing ardent or enthusiastic in his nature, as little was there any thing mean, sordid or ignoble. He approached nearly a faultless specimen of pure intellect. "An intellectual head thinking, a pair of wonderfully acute eyes observing, and a pair of very skilful hands experimenting or recording, are all," says Mr. Wilson, his biographer, "that I realize in reading his memorials."

He seems to have done all things in the same spirit. Whenever we get sight of him, he is engaged in some exercise of his measuring rod, his balance, his graduate, his barometer, or his

thermometer. He weighed the earth, he analysed the air, he discovered the compound nature of water, and noted with numerical precision the obscure actions of that quasi-element, fire. He insisted on the most trivial details to insure accuracy, and he extended this detail even to the affairs of daily life. He wore the same dress, a suit of dull violet, from year to year, taking no heed of fashion. He owned but one suit of clothes at a time, his boots were always put down at a certain place, and his cane always in one particular boot. His hat was always hung at the Society club, on a particular knob, and when he rode out in his carriage, the number of miles he had travelled was always recorded by a way-wiser.

Yet this man, so patient, so methodical, so simple in his routine, was, at the time of his decease, the largest owner of bank stock in Great Britain, being worth, in the public funds, the sum of £1,157,000. He had a freehold property of £8,000 a year, a canal and other personal property amounting to not less than £1,407,000 or nearly eight millions of dollars.

In the language of Mr. Wilson, "he died as he had lived, taking no pains to perpetuate the memory of a fame which could not be kept from proclaiming itself during his life. His enormous wealth he left to his relatives, who would scarcely have grudged his bequeathing a moderate portion of it to the furtherance of the sciences to which he had devoted his life. But from his kinsmen he had received his wealth, and to them, increased a hundred fold, he returned it. His successors in science, whose struggles for daily knowledge do not always secure daily bread, have remembered that he, who forgot them in his last testament, forgot also himself, and spent none of his wealth in prolonging his own memory upon earth.

Yet he has wonderfully enriched us all by his lessons, his example, his methods of research and his great discoveries.

And we here, to-day, gentlemen, pursuers of science, have greater cause to venerate the memory of Cavendish, than have those of his own lineage to whom descended his worldly possessions; for he has generously bequeathed to us, in common with all mankind, the vast accumulations of his splendid intellect.

Wealth and honors may fade from his line, but the works of his genius shall endure forever.

APPENDIX.

LIST OF PLANTS IMPORTED BY THE PATENT OFFICE.

The Chairman of the Committee appointed in 1858 to co-operate with the Agricultural Division of the Patent Office to introduce foreign medicinal plants, &c., reports the following :

List of the Medicinal and useful plants procured by the "Agricultural Division" of the Patent Office, 1860.

Aloe socotrina. East Indies.—The aloes, known as socotrine in medicine, is yielded by this plant. "In preparing this drug, the leaves are cut off close to the stem, then cut in pieces, and the juice expressed. This is allowed to remain at rest for forty-eight hours, during which time a feculent matter is deposited; after which the supernatant liquor is poured off into flat dishes and evaporated in the sun."

Agave sp. from California. Pulque plant.—An excellent soap is made from the juice of this plant, which will lather with salt water as well as fresh water.

Croton variegatum. East Indies.—Croton oil used in medicine, is procured from a species of this plant.

Chamærops, sp. China. (Hemp Palm).—Rope and cordage are made from the fibre of this palm, in China.

Cookia punctata. China. (Wampee).—The fruit of this tree is much esteemed in China, it grows in clusters, each fruit being about the size of a pigeon's egg.

Coffea Arabica. Arabia.—The seed of this plant is the coffee of commerce.

Cycas revoluta. China. (Sago Palm).—The nutritive powder called sago, is produced from the trunk of this palm, in the following manner. The trees upon arriving at maturity are cut down. The pith is then taken out and beaten with wooden pestals in large troughs, and the sediment without farther preparation constitutes the sago.

Cassia species. Egypt.—Senna known in medicine, consists of the dried leaves of this plant.

Dracæna draco. East Indies. (Dragon tree).—The red substance known as dragon's blood in medicine, is produced by this tree.

Eriobotrya Japonica. Japan. (Loguas).—This plant bears an agreeable juicy fruit, about the size of a small plum, and is much esteemed in Japan.

Ficus elastica. East Indies. (Gum tree).—The elastic gum known as Indian Rubber in commerce, is obtained from this plant.

Zingiber officinale. East Indies. (Ginger).—The roots of this plant are much used in medicine, and for culinary purposes, and form an article of considerable export from the West Indian islands, and are prepared in the following manner: "The roots of ginger are taken up when the stalks fade, and, (being first washed and scalded) are afterwards dried in the sun; this forms black ginger; the white root is never scalded, but only washed and dried.

Jambosa vulgaris. (East Indies.) Rose apple.—This plant bears a fruit nearly as large as the peach, of an agreeable flavor.

Laurus cinnamomum. East Indies. (Cinnamon).—The bark of this tree forms the cinnamon of commerce, and is also used in medicine.

Punica nana. West Indies. (Dwarf Pomegranate).—This plant bears a large sized agreeable fruit.

Psidium pyrifera. West Indies. (Guava).—The fruit of this tree is much esteemed in the West Indies, by natives and Europeans; it generally grows about the size of a hen's egg.

Piper nigrum. East Indies.—This plant furnishes the pepper of commerce. "It grows wild in the East Indies, and is cultivated in Malacca, Java, and especially Sumatra. The pepper, or berry, is distinguished in the shops, as black, or white; the former is the dried berry in its natural state; the latter, the berry deprived of its skin, by steeping about a fortnight in water, and then dried in the sun.

Torreya Myristica. California.—(California nutmeg.)

Tamarindus indica. East Indies.—(Tamarind.)

Indigofera tinctoria. East Indies.—Indigo, well known as a dye, is obtained from this plant.

Zamia horrida. Africa.—Caffir bread-fruit tree.

The following named plants have been received from "Syria" and are under course of propagation, in the Propagating Garden attached to this office.

"*Sesame*, *Simsim*, or *Sussim*.—It is from the seeds of this plant that serge is extracted; an oil much used in soap making, cooking, and for light."

"*Helby*, a kind of pea, oleaginous, and slightly medicinal, but used also as a kind of condiment, and on bread."

"*Mais* tree. This plant is highly esteemed for its medicinal, or rather prophylactic properties."

"*Sugar cane*, white and purple varieties," (similar to the East Indian sugar-cane *Saccharum officinarum*.)

"*Henna*." This tree yields a reddish yellow dye-stuff, with which the Syrian women dye the nails of their hands.

"*Scilla maritima*."—Squills used in medicine are obtained from this plant.

"*Colocynth*" (*Cucumis colocynthis*).—The fruit is a round gourd

about the size of an orange, abounding with pulpy matter, and with numerous oval compressed seeds. A tincture of this pulp in diluted alcohol, when evaporated, forms the extract of colocynth, used in medicine.

The Cork tree, the Tea plant, the Peruvian bark, the Algaroba, or Carob tree, the wax and tallow trees, &c., which have been mentioned in former report, are as much as ever the thought of the office. The Agricultural Department have distributed 30,000 tea plants, and reports so far are remarkably favorable, as to their growth. Seeds of the Peruvian bark will be received at an early day. A large amount of the cork oak acorn is again ordered, but for preparation in their own garden, to be sent out as young plants; the acorns generally perishing by a variety of accidents when distributed from the office. Special care is being paid to the grape, with a view to encouraging to the utmost its cultivation, and the making of wine. They propose procuring the seeds of various medicinal plants for cultivation in the garden and distribution to those interested in their propagation.

The Commissioner assures the Committee that he is particularly interested in such matters as will advance our wishes, and feels the great importance of co-operating with the American Pharmaceutical Association on such subjects as will aid them in procuring medicinal plants, seeds, &c., and has used and will use every effort to introduce everything into the country that may be of real value.

Through the kindness of Mr. S. T. Shugart, Acting Commissioner, the Committee are able to make the above short report, which they hope will receive the approbation of the Association.

Respectfully,

J. L. KIDWELL.

Washington, September 11th, 1860.

[NOTE TO THE READER.—The following addition to the description of the new variety of Garlic was not received until too late to insert it in its proper place at page 181.—EXEC. COMM.]

Capsule supported by the persistent perianth, 3-angled, splitting at the angles into three valves. Each valve is subdivided by a central dissepiment into two compartments, each of which contains a single aborted seed. The capsule is 3-celled, each cell being completed by the junction of two adjacent valves.

A careful examination of the capsules of two entire heads failed to detect a single perfect seed.

C O N S T I T U T I O N
OF THE
AMERICAN PHARMACEUTICAL ASSOCIATION.

P R E A M B L E .

Whereas, The advancement of pharmaceutical knowledge, and the elevation of the professional character of Apothecaries and Druggists throughout the United States, are dear to us in common with all well-disposed pharmacutists; and *whereas*, a large portion of those in whose hands the practice of pharmacy now exists, are not properly qualified for the responsible offices it involves, chiefly by reason of the many difficulties that impede the acquirement of a correct knowledge of their business:

Therefore, We, the members of a Convention now met at Philadelphia, [September, 1852,] composed of Apothecaries and Druggists from different sections of the Union, and from all the Colleges and Societies therein existing, with the object of deliberating on the condition of our profession, do hereby resolve and constitute ourselves into a permanent Association, to meet annually, at such times and places as may hereafter be determined, for more effectually accomplishing the objects for which we are now assembled, and do now adopt the following

C O N S T I T U T I O N .

ARTICLE I.

This Association shall be called the American Pharmaceutical Association. Its aim shall be to unite the educated and reputable Pharmacutists and Druggists of the United States in the following objects:

1st. To improve and regulate the drug market, by preventing the importation of inferior, adulterated or deteriorated drugs, and by detecting and exposing home adulteration.

2d. To establish the relations between Druggists, Pharmacutists, Physicians, and the people at large, upon just principles, which shall promote the public welfare, and tend to mutual strength and advantage.

3d. To improve the science and the art of pharmacy by diffusing scientific knowledge among Apothecaries and Druggists, fostering pharmaceutical literature, developing talent, stimulating discovery and invention, and encouraging home production and manufacture in the several departments of the drug business.

4th. To regulate the system of apprenticeship and employment so as to prevent, as far as practicable, the evils flowing from deficient training in the responsible duties of preparing, dispensing and selling medicines.

5th. To suppress empyricism, and, as much as possible, to restrict the dispensing and sale of medicines to regularly educated Druggists and Apothecaries.

ARTICLE II.—*Of the Members.*

Section 1. Every Pharmaceutist or Druggist of good moral and professional standing, whether in business on his own account, retired from business, or employed by another, who, after duly considering the objects of the Association and the obligations of its Constitution, is willing to subscribe to them, is eligible to membership.

Section 2. The mode of admission to membership shall be as follows:—Any person eligible to membership may apply to any member of the Executive Committee, who shall report his application to the said Committee. If, after investigating his claims, they shall approve his election, they shall, at the earliest time practicable, report his name to the Association, and he may be elected by two-thirds of the members present, on ballot. Should an application occur in the recess, the members of the Committee may give their approval in writing, which, if unanimous, and endorsed by the President, shall constitute him a member, and the fact be reported to the Association at the next succeeding meeting.

Section 3. No person shall become a member of this Association until he shall have signed the Constitution, and paid his annual contribution for the current year. All persons who become members, shall be considered as permanent members, but may be expelled, for improper conduct, by a vote of two-thirds of the members present at any annual meeting.

Section 4. Every member shall pay into the hands of the Treasurer the sum of two dollars, as his yearly contribution, and is liable to lose his right of membership by neglecting to pay said contribution for three successive years. Members shall be entitled, on the payment of three dollars, to receive a certificate of membership, signed by the President, Vice-President, and Secretary, covenanting to return the same to the proper officer on relinquishing their connection with the Association.

Section 5. Every local Pharmaceutical Association shall be entitled to five delegates in the annual meetings, who, if present, become members of the Association, on signing the Constitution, without being ballotted for.

Section 6. Pharmacutists, Chemists, and other scientific men who may be thought worthy of the distinction, may be elected honorary members upon the same conditions and under the same rules as appertain to active members. They shall not, however, be required to contribute to the funds, nor shall they be eligible to hold office, or to vote at the meetings.

Section 7. Members who have paid their annual contributions for ten successive years shall be considered life members, and exempt from their yearly payments, and entitled to a certificate to that effect.

ARTICLE III.—*Of the Officers.*

Section 1. The officers shall be, a President, two or more Vice-Presidents, a Recording Secretary, a Corresponding Secretary, and a Treasurer, who shall be elected annually, and shall hold office until an election of successors.

Section 2. The President shall preside at the meetings, and administer the rules of order usual in deliberative assemblies. He shall nominate all special committees, except a majority of the members present direct a resort to balloting, or other means.

He shall sign the certificates of membership, approve all foreign correspondence, and countersign orders on the Treasurer.

He shall present at each annual meeting a report of the operations of the Association during the year, with such information pertaining to its condition and prospects, and the object it has in view, together with such suggestions for its future management, as may seem to him proper.

Section 3. In case of the temporary absence or inability of the President, his duties shall devolve on one of the Vice-Presidents, in the order of their names.

Section 4. The Recording Secretary shall keep fair and correct minutes of the proceedings of the meetings, and carefully preserve on file all reports, essays and papers of every description received by the Association, copies or abstracts of which shall be furnished for publication as may be required.

He shall furnish the chairman of every special committee with a list of its members, and a copy of the minute of its appointment, and shall notify every member of the time and place of each annual meeting. He shall be a member of the Executive Committee.

Section 5. The Corresponding Secretary shall conduct all correspondence directed by the Association, and reply to all communications addressed to it in its recess. He shall, from time to time, address local Associations, members and others possessed of information likely to be of interest to the Association, and report such correspondence to the Committee on the Progress of Pharmacy, of which he shall be a member.

Section 6. The Treasurer shall collect and take charge of the funds of the Association, and shall also hold and issue the certificates of membership. He shall pay no monies, unless by the order of the chairman of one of the standing or of a special committee, authorized to appropriate funds of the Association, such order to be countersigned by the President.

He shall present a statement of his accounts at each annual meeting, that they may be audited. He shall also report to the Executive Committee, previous to each annual meeting, the names of such members as have failed to pay their annual contributions for three years, and also the names of such as have failed to return their certificates of membership after having been officially disconnected with the Association, and duly notified to do so.

ARTICLE IV.—*Of the Standing Committees.*

Section 1. There shall be two standing committees elected annually—an executive Committee, and a Committee on the Progress of Pharmacy. They shall each consist of five members, and shall elect their own Chairman.

Section 2. The Executive Committee, of which the Recording Secretary shall be one of the members, shall have charge of the revision of the roll, the investigation of applications for membership, the election of members in the recess, and the publication of the Proceedings. They shall report at each meeting a revised roll of members, with appropriate notices of deceased members, also the names of any who, having become disconnected with the Association, refuse to return their certificates of membership, as provided by this Constitution.

The annual publication of the Proceedings shall contain the corrected roll of members, full minutes of the several sittings, the Reports of the President and of the Committees, together with such addresses, scientific papers, discussions, notices of new processes, and preparations, as the Executive Committee may deem worthy of insertion. At least one copy shall be furnished each member of the Association.

Section 3. The Committee on the Progress of Pharmacy, of which the Corresponding Secretary shall be one of the members, shall report annually to the Association on the improvements in Chemistry, Practical Pharmacy and the collateral branches, on any new works bearing on these subjects published in this country or in Europe, on the condition of the drug-market, and the quality of drugs and manufactured articles, whether of foreign or domestic production, found in commerce.

ARTICLE V.—*Of the Meetings.*

Section 1. The meetings shall be held annually, or as the Association may from time to time determine; provided that, in case of failure of this from any cause, the duty of calling the Association together shall devolve upon the President, or one of the Vice-Presidents, with the advice and consent of the Executive Committee.

Section 2. At the opening of each annual meeting, the President, or, in case of his absence, one of the Vice-Presidents, shall call the meeting to order, and preside until after an election of officers: In case the President and Vice-President are absent, this duty shall devolve on the chairman of the Executive Committee, or, in his absence, on any member chosen by vote of those present.

In the absence of the Recording Secretary, the President shall appoint a Secretary, *pro tempore*.

The order of business at the first session of each annual meeting shall be as follows :

1st. The appointment by the President of a committee of three persons to examine credentials, and report the names of those duly accredited.

2d. The Executive Committee shall report the names of new members, and of persons present, recommended for membership, who shall be immediately ballotted for.

3d. The roll of those in attendance, as thus completed, shall be called by the Secretary.

4th. The reports of the Standing and Special Committees shall be read by their titles, or in full, and laid on the table for future consideration.

5th. A committee to nominate officers for the ensuing year shall be appointed, consisting of one nominated by each delegation in attendance, and three members appointed by the President, from among those not delegated, to report at the opening of the next session.

The first session shall close with the reading of the President's annual report, and referring any portions requiring the action of Committees.

After the first session, the order of business shall be determined by the nature of the subjects presented, and by the consent of the majority.

Section 3. During periods fixed by vote for scientific discussion and the exhibition of specimens and processes, the ordinary rules of parliamentary bodies shall be suspended, but, at other times, shall be enforced by the presiding officer, from whose decisions, however, appeals may be taken if required by five members, and the meeting shall thereupon decide without debate.

A motion reduced to writing, and seconded, shall be open to discussion, and, while it is before the meeting, no motion shall be received, unless to amend, divide, commit, to lay on the table, postpone, or to adjourn ; and a motion to adjourn shall be decided without debate.

On the call of any member, the yeas and nays shall be ordered.

when every member shall vote, unless excused by a majority of those present, and the names and manner of voting shall be entered on the Minutes.

ARTICLE VI.

This Constitution may be altered or amended by a vote of three-fourths of the members present at any regular meeting, and notice to alter or amend the same shall be given at least one sitting before a vote thereupon.

Forms to be signed by Applicants for Membership.

Approving of the objects of the American Pharmaceutical Association, I am desirous of joining it in membership; and, having read its Constitution, I hereby signify my approval of it, and subscribe to it.

I hereby agree to return my certificate of membership in the American Pharmaceutical Association to the Treasurer of that body; if I shall hereafter cease to be connected in membership with it.

The undersigned being personally acquainted with
testify to his moral character, his skill as a
practical Druggist and Pharmaceutist, and his professional probity
and good standing, and they recommend him for membership in
the American Pharmaceutical Association.

Name.

Profession.

Address.

The undersigned, Executive Committee of the American Pharmaceutical Association, approve the election of
to membership.

Approved

.....
President.

Date.

ROLL OF MEMBERS.

[Deceased Members in Italics.]

Henry T. Cummings,	Portland,	Maine,	1853
Edmund Dana, Jr.,	Portland,	Maine,	1859
Walter F. Phillips,	Portland,	Maine,	1859
William Atwood,	Portland,	Maine,	1859
Sargent P. Coe,	Portland,	Maine,	1860
N. S. Harlow,	Bangor,	Maine,	1859
John G. Cook,	Lewiston,	Maine,	1859
William Baker,	Brunswick,	Maine,	1859
Charles A. Tufts,	Dover,	New Hampshire,	1856
O. Gilman Dort,	Keene,	New Hampshire,	1858
Charles A. Merrill,	Exeter,	New Hampshire,	1858
George S. Kendrick,	Lebanon,	New Hampshire,	1858
Joseph H. Thacher,	Portsmouth,	New Hampshire,	1859
Edward H. Rollins,	Concord,	New Hampshire,	1859
John F. Rollins,	Concord,	New Hampshire,	1859
Julius Cene,	Concord,	New Hampshire,	1859
James Morgan,	Concord,	New Hampshire,	1859
George Moore,	Great Falls,	New Hampshire,	1859
Rufus W. Stevens,	Great Falls,	New Hampshire,	1859
<i>S. P. Peck,</i>	Bennington,	Vermont,	1853
J. C. Bingham,	St. Johnsbury,	Vermont,	1853
Chauncy L. Case,	Brandon,	Vermont,	1859
E. A. Morse,	Rutland,	Vermont,	1859
E. A. Pond,	Rutland,	Vermont,	1859
L. L. Dutcher,	St. Albans,	Vermont,	1859
Frederick Dutcher,	St. Albans,	Vermont,	1859
Samuel M. Colcord,	Boston,	Massachusetts,	1852
<i>Samuel R. Philbrick,</i>	Boston,	Massachusetts,	1852
Daniel Henchman,	Boston,	Massachusetts,	1853
Thomas Restieaux,	Boston,	Massachusetts,	1853
<i>Andrew Geyer,</i>	Boston,	Massachusetts,	1853
T. Larkin Turner,	Boston,	Massachusetts,	1853
Henry W. Lincoln,	Boston,	Massachusetts,	1858

William A. Brewer,	Boston,	Massachusetts,	1853
Thomas Hollis,	Boston,	Massachusetts,	1853
Ashel Boyden,	Boston,	Massachusetts,	1853
Henry D. Fowle,	Boston,	Massachusetts,	1853
James S. Melvin,	Boston,	Massachusetts,	1853
William W. Goodwin,	Boston,	Massachusetts,	1853
Charles T. Carney,	Boston,	Massachusetts,	1853
Robert R. Kent,	Boston,	Massachusetts,	1855
Alvah Littlefield,	Boston,	Massachusetts,	1856
Augustus P. Melzar,	Boston,	Massachusetts,	1856
Charles H. Atwood,	Boston,	Massachusetts,	1856
James Gordon,	Boston,	Massachusetts,	1857
Theodore Metcalf,	Boston,	Massachusetts,	1857
David Roberts,	Boston,	Massachusetts,	1858
William Brown,	Boston,	Massachusetts,	1858
Oliver H. Webber,	Boston,	Massachusetts,	1858
George D. Towne,	Boston,	Massachusetts,	1858
D. B. Kidder,	Boston,	Massachusetts,	1858
Andrew R. Fox,	Boston,	Massachusetts,	1858
Granville M. Clarke,	Boston,	Massachusetts,	1858
George D. Ricker,	Boston,	Massachusetts,	1858
C. H. Lyon, Jr.,	Boston,	Massachusetts,	1858
I. Bartlett Patten,	Boston,	Massachusetts,	1858
Leopold Babo,	Boston,	Massachusetts,	1859
John C. Howe,	Boston,	Massachusetts,	1859
Levi G. Dodge,	Boston,	Massachusetts,	1859
Andrew G. Weeks,	Boston,	Massachusetts,	1859
William J. Cutler,	Boston,	Massachusetts,	1859
E. Waldo Cutler,	Boston,	Massachusetts,	1859
B. F. Brown,	Boston,	Massachusetts,	1859
William D. Miller,	Boston,	Massachusetts,	1859
Theodore S. Harris,	Boston,	Massachusetts,	1859
George H. Chapman,	Boston,	Massachusetts,	1859
John French,	Boston,	Massachusetts,	1859
Theodore Wheeler,	Boston,	Massachusetts,	1859
Orlando Tompkins,	Boston,	Massachusetts,	1859
Isaac T. Campbell,	Boston,	Massachusetts,	1859
Thomas Doliber,	Boston,	Massachusetts,	1859
Charles Clarke,	Boston,	Massachusetts,	1859
G. C. Wilson,	Boston,	Massachusetts,	1859
B. O. Wilson,	Boston,	Massachusetts,	1859

<i>John T. Brown,</i>	Boston,	Massachusetts,	1859
Michael H. Gleeson,	Boston,	Massachusetts,	1859
James A. Gleeson,	Boston,	Massachusetts,	1859
Joseph T. Brown,	Boston,	Massachusetts,	1859
Moses D. Colby,	Boston,	Massachusetts,	1859
George Woodbridge,	Boston,	Massachusetts,	1859
Samuel H. Woods,	Boston,	Massachusetts,	1859
Henry Warren,	Boston,	Massachusetts,	1859
John Butterworth,	Boston,	Massachusetts,	1860
John L. Hunnewell,	Boston,	Massachusetts,	1860
Joshua G. Wilbur,	Boston,	Massachusetts,	1860
Elijah Smalley,	Boston,	Massachusetts,	1860
Levi Tower, Jr.,	Boston,	Massachusetts,	1860
Edward H. Fernald,	Boston,	Massachusetts,	1860
Abraham S. Wiley,	Cambridge,	Massachusetts,	1857
Henry Thayer,	Cambridge,	Massachusetts,	1858
William Gay,	Cambridge,	Massachusetts,	1858
A. R. Bailey,	Cambridge,	Massachusetts,	1859
A. H. Ramsey,	Cambridge,	Massachusetts,	1859
Joel S. Orne,	Cambridge,	Massachusetts,	1859
Francis D. Hardy, Jr.,	Cambridge,	Massachusetts,	1859
David Scott,	Worcester,	Massachusetts,	1855
Nelson R. Scott,	Worcester,	Massachusetts,	1859
James L. Burbank,	Worcester,	Massachusetts,	1859
M. S. McConville,	Worcester,	Massachusetts,	1859
Anthony S. Jones,	Newburyport,	Massachusetts,	1853
Charles A. Nolcini,	Newburyport,	Massachusetts,	1858
Samuel A. Smith,	Newburyport,	Massachusetts,	1859
John Buck,	Chelsea,	Massachusetts,	1855
Charles E. Field,	Chelsea,	Massachusetts,	1859
John Lynam,	Chelsea,	Massachusetts,	1860
Edw. G. Frothingham, Jr.,	Haverhill,	Massachusetts,	1859
George A. Kimball,	Haverhill,	Massachusetts,	1859
H. M. Whitney,	Lawrence,	Massachusetts,	1859
B. K. Bliss,	Springfield,	Massachusetts,	1859
Edmund Bigelow,	Springfield,	Massachusetts,	1860
Daniel F. White,	Charlestown,	Massachusetts,	1859
Benjamin F. Stacey,	Charlestown,	Massachusetts,	1860
C. C. Bixby,	N. Bridgewater,	Massachusetts,	1859
Warren Tapley,	Lynn,	Massachusetts,	1859
Benjamin Proctor,	Lynn,	Massachusetts,	1859

Thomas A. Sweetser,	South Danvers,	Massachusetts,	1859
James Emerton	Salem,	Massachusetts,	1859
John B. Arnold,	Fitchburgh,	Massachusetts,	1859
James B. Lane,	Fitchburgh,	Massachusetts,	1853
Francis O. Bigelow,	Medford,	Massachusetts,	1859
Samuel Kidder, Jr.,	Lowell,	Massachusetts,	1859
Charles E. Savelle,	Roxbury,	Massachusetts,	1860
Joseph L. Moffatt,	Roxbury,	Massachusetts,	1860
Francis Tinker,	Leominster,	Massachusetts,	1860
F. A. Weber,	Rockport,	Massachusetts,	1860
Charles F. Rogers,	Newton,	Massachusetts,	1860
C. M. Whildon,	Pittsfield,	Massachusetts,	1860
Dexter D. Geyer,	Gloucester,	Massachusetts,	1857
William H. Ware,	Gloucester,	Massachusetts,	1859
Eben Blatchford,	Rockport,	Massachusetts,	1857
B. W. Conant,	Woburn,	Massachusetts,	1858
Robert J. Taylor,	Newport,	Rhode Island,	1859
Albert L. Calder,	Providence,	Rhode Island,	1859
H. H. Burrington,	Providence,	Rhode Island,	1859
Alfred C. Dana,	Providence,	Rhode Island,	1859
Albert J. Congden,	East Greenwich,	Rhode Island,	1860
Henry F. Fish,	Waterbury,	Connecticut,	1852
Nathan Dikeman,	Waterbury,	Connecticut,	1859
James M. B. McNary,	Hartford,	Connecticut,	1859
Thomas Sisson,	Hartford,	Connecticut,	1860
Samuel E. Noyes,	New Haven,	Connecticut,	1859
E. E. Knapp,	Norwalk,	Connecticut,	1860
Llewellyn S. Haskell,	New York City,	New York,	1852
George D. Coggeshall,	New York City,	New York,	1852
John Meakim,	New York City,	New York,	1852
Eugene Dupuy,	New York City,	New York,	1852
C. B. Guthrie,	New York City,	New York,	1852
Junius Gridley,	New York City,	New York,	1853
James S. Aspinwall,	New York City,	New York,	1855
<i>Benjamin Canavan,</i>	New York City,	New York,	1855
John Canavan,	New York City,	New York,	1855
John Milhau,	New York City,	New York,	1855
John P. Dodge,	New York City,	New York,	1855
<i>F. A. Hegeman,</i>	New York City,	New York,	1855
<i>James T. Maxwell,</i>	New York City,	New York,	1855
Isaac Coddington,	New York City,	New York,	1855

Frederick Hale,	New York City,	New York,	1855
Frederick Thompson,	New York City,	New York,	1856
H. T. Kiersted,	New York City,	New York,	1856
William F. Henry,	New York City,	New York,	1856
George Syme,	New York City,	New York,	1857
Henry Haviland,	New York City,	New York,	1857
George W. Berrian, jr.,	New York City,	New York,	1857
George W. De la Vergne,	New York City,	New York,	1857
John Faber,	New York City,	New York,	1857
Alexander Cushman,	New York City,	New York,	1858
William J. Oliffe,	New York City,	New York,	1858
Thomas T. Green,	New York City,	New York,	1858
Ray B. Easterbrook,	New York City,	New York,	1858
Henry King,	New York City,	New York,	1858
William Egerton,	New York City,	New York,	1858
William M. Somerville,	New York City,	New York,	1858
Henry A. Cassebeer,	New York City,	New York,	1858
Edward L. Milhau,	New York City,	New York,	1858
George O. Bridges,	New York City,	New York,	1858
Lewis T. Lazell,	New York City,	New York,	1858
Edward H. Marsh,	New York City,	New York,	1858
John H. Currie,	New York City,	New York,	1858
Andrew J. Parker,	New York City,	New York,	1858
Samuel N. Stebbins,	New York City,	New York,	1858
Henry R. Haydock,	New York City,	New York,	1858
Lucian F. Wheeler,	New York City,	New York,	1858
John C. Hart,	New York City,	New York,	1858
Robert A. Sands,	New York City,	New York,	1858
William Hegeman,	New York City,	New York,	1858
Fred. V. Rushton,	New York City,	New York,	1858
John D. Dix,	New York City,	New York,	1858
William A. Gellatly,	New York City,	New York,	1858
J. H. Westerfield,	New York City,	New York,	1858
Walton S. Coon,	New York City,	New York,	1858
Augustus C. Evans,	New York City,	New York,	1858
Henry Kiersted,	New York City,	New York,	1858
Raymond Gravrend,	New York City,	New York,	1859
L. Leroy,	New York City,	New York,	1859
Henry Steele,	New York City,	New York,	1859
William Wright, Jr.,	New York City,	New York,	1859
James A. Anderson,	New York City,	New York,	1859

P. Wendover Bedford,	New York City,	New York,	1859
Alfred J. Shipley,	New York City,	New York,	1859
John W. Shedden,	New York City,	New York,	1859
W. Neergaard,	New York City,	New York,	1859
Henry Q. Mack,	New York City,	New York,	1859
F. F. Mayer,	New York City,	New York,	1859
Corydon E. Tyler,	New York City,	New York,	1859
Alexander V. Blake,	New York City,	New York,	1860
J. Weaver,	New York City,	New York,	1860
Samuel J. Billings,	New York City,	New York,	1860
William J. Watson,	New York City,	New York,	1860
William M. Giles,	New York City,	New York,	1860
John Carle, Jr.,	New York City,	New York,	1860
Jesse M. Sands,	New York City,	New York,	1860
Jabez H. Hazard,	New York City,	New York,	1860
Jesse Weaver,	New York City,	New York,	1860
George W. Southwick,	New York City,	New York,	1860
E. L. Johnson,	New York City,	New York,	1860
William J. Darbey,	New York City,	New York,	1860
Theodore Schumann,	New York City,	New York,	1860
Otto Laist,	New York City,	New York,	1860
George G. Porter,	New York City,	New York,	1860
George E. Sheils,	New York City,	New York,	1860
William Ball,	New York City,	New York,	1860
Warren B. Gardiner,	New York City,	New York,	1860
Gustav Ramsperger,	New York City,	New York,	1860
Augustine Presinger,	New York City,	New York,	1860
George W. Mowbray,	New York City,	New York,	1860
Tristram W. Metcalf,	Brooklyn,	New York,	1857
Alexander Hudnut,	Brooklyn,	New York,	1857
Thomas Whitehorn,	Brooklyn,	New York,	1857
Edward R. Squibb,	Brooklyn,	New York,	1858
Robert J. Davies,	Brooklyn,	New York,	1858
George F. Ayling,	Brooklyn,	New York,	1858
George C. Close,	Brooklyn,	New York,	1858
J. Lindley Pyle,	Brooklyn,	New York,	1859
Cyrus Pyle,	Brooklyn,	New York,	1859
Luther Atwood,	Brooklyn,	New York,	1859
William H. Page,	Brooklyn,	New York,	1860
Thomas Kingshorn,	Brooklyn,	New York,	1860
Peter D. Leys,	Brooklyn,	New York,	1860

L. S. Hubbard,	Brooklyn,	New York,	1860
Richard Forester,	Brooklyn,	New York,	1860
George C. Leys,	Brooklyn,	New York,	1860
W. E. P. Baylis,	Brooklyn,	New York,	1860
Richard J. Owens,	Brooklyn,	New York,	1860
John McDonald,	Brooklyn,	New York,	1860
Paul Balluff,	Brooklyn,	New York,	1860
Victor Heidenreich,	Brooklyn,	New York,	1860
S. G. Welling,	New Rochelle,	New York,	1860
William E. Hagan,	Troy,	New York,	1860
William G. Stephens,	Yonkers,	New York,	1860
Theodore Moitz,	Fishkill,	New York,	1860
H. A. Tilden,	New Lebanon,	New York,	1858
A. I. Mathews,	Buffalo,	New York,	1855
William H. Peabody,	Buffalo,	New York,	1857
H. A. Blauw,	Rochester,	New York,	1856
Alfred S. Lane,	Rochester,	New York,	1857
James T. King,	Middleton,	New York,	1859
James Stratton,	Bordentown,	New Jersey,	1859
<i>William Thomas,</i>	Jersey City,	New Jersey,	1855
Peter V. Coppuck,	Mount Holly,	New Jersey,	1857
C. H. Dalrymple,	Morristown,	New Jersey,	1860
Charles Ellis,	Philadelphia,	Pennsylvania,	1852
William Procter, Jr.,	Philadelphia,	Pennsylvania,	1852
Alfred B. Taylor,	Philadelphia,	Pennsylvania,	1852
Edward Parrish,	Philadelphia,	Pennsylvania,	1852
Peter J. Hazzard,	Philadelphia,	Pennsylvania,	1853
Samuel S. Garrigues,	Philadelphia,	Pennsylvania,	1855
Henry C. Blair,	Philadelphia,	Pennsylvania,	1856
John H. Ecky,	Philadelphia,	Pennsylvania,	1856
Frederick L. John,	Philadelphia,	Pennsylvania,	1856
John M. Maisch,	Philadelphia,	Pennsylvania,	1856
Thomas Weaver,	Philadelphia,	Pennsylvania,	1856
Dillwyn Parrish,	Philadelphia,	Pennsylvania,	1857
Samuel F. Troth,	Philadelphia,	Pennsylvania,	1857
Ambrose Smith,	Philadelphia,	Pennsylvania,	1857
Thomas P. James,	Philadelphia,	Pennsylvania,	1857
Charles Bullock,	Philadelphia,	Pennsylvania,	1857
Thomas S. Wiegand,	Philadelphia,	Pennsylvania,	1857
Samuel N. James,	Philadelphia,	Pennsylvania,	1857
Evan T. Ellis,	Philadelphia,	Pennsylvania,	1857

Louis M. Emanuel,	Philadelphia,	Pennsylvania,	1857
Wilson H. Pile,	Philadelphia,	Pennsylvania,	1857
Samuel S. Bunting,	Philadelphia,	Pennsylvania,	1857
T. Morris Perot,	Philadelphia,	Pennsylvania,	1857
Asher S. Leidy,	Philadelphia,	Pennsylvania,	1857
William H. Pratt,	Philadelphia,	Pennsylvania,	1857
Edward Donnelly,	Philadelphia,	Pennsylvania,	1857
<i>Henry Steiner,</i>	Philadelphia,	Pennsylvania,	1857
Hennell Stevens,	Philadelphia,	Pennsylvania,	1857
Samuel Chapman,	Philadelphia,	Pennsylvania,	1857
Edward H. Hance,	Philadelphia,	Pennsylvania,	1857
Charles H. Eggert,	Philadelphia,	Pennsylvania,	1857
George M. Snowden,	Philadelphia,	Pennsylvania,	1857
George Cooke,	Philadelphia,	Pennsylvania,	1857
William R. Warner,	Philadelphia,	Pennsylvania,	1857
O. S. Hubbell,	Philadelphia,	Pennsylvania,	1857
Thomas Lancaster,	Philadelphia,	Pennsylvania,	1857
Bradford Ritter,	Philadelphia,	Pennsylvania,	1857
Henry N. Rittenhouse,	Philadelphia,	Pennsylvania,	1857
J. Lindsey O'Neal,	Philadelphia,	Pennsylvania,	1858
William J. Jenks,	Philadelphia,	Pennsylvania,	1858
E. Raphael Perrot,	Philadelphia,	Pennsylvania,	1858
W. B. Thompson,	Philadelphia,	Pennsylvania,	1858
Thomas A. Lancaster,	Philadelphia,	Pennsylvania,	1859
Adolphus F. Neynaber,	Philadelphia,	Pennsylvania,	1859
Adam H. Wilson,	Philadelphia,	Pennsylvania,	1859
Benjamin F. Johnson,	Philadelphia,	Pennsylvania,	1859
J. A. Heintzelman,	Philadelphia,	Pennsylvania,	1858
Daniel S. Jones,	Philadelphia,	Pennsylvania,	1859
James T. Shinn,	Philadelphia,	Pennsylvania,	1860
George J. Scattergood,	Philadelphia,	Pennsylvania,	1860
Charles Shivers,	Philadelphia,	Pennsylvania,	1860
William Evans, Jr.,	Philadelphia,	Pennsylvania,	1860
Benjamin J. Crew,	Philadelphia,	Pennsylvania,	1860
J. Lewis Crew,	Philadelphia,	Pennsylvania,	1860
Henry Bower,	Philadelphia,	Pennsylvania,	1860
Thomas R. Coombe,	Philadelphia,	Pennsylvania,	1860
Abram Alberger, Jr.,	Philadelphia,	Pennsylvania,	1860
Charles A. Bannvart,	Harrisburg,	Pennsylvania,	1856
William Heyser, Jr.,	Chambersburg,	Pennsylvania,	1856
Charles A. Heinitsch,	Lancaster,	Pennsylvania,	1857
Leander Neal,	Lancaster,	Pennsylvania,	1858

M. M. Selfridge,	Bethlehem,	Pennsylvania,	1858
Joseph L. Lemberger,	Lebanon,	Pennsylvania,	1859
E. T. Miller,	York,	Pennsylvania,	1858
J. B. Moore,	Danville,	Pennsylvania,	1860
J. A. Wolf,		Pennsylvania,	1860
Samuel K. Norgrove,	Pittsburg,	Pennsylvania,	1857
Geo. W. Weyman,	Pittsburg,	Pennsylvania,	1858
Charles H. Super,	Pittsburg,	Pennsylvania,	1858
Harmer D. Scully,	Pittsburg,	Pennsylvania,	1858
James E. Cunningham,	Pittsburg,	Pennsylvania,	1860
H. M. Pettit,	Pittsburg,	Pennsylvania,	1860
John D. Mattern,	Pittsburg,	Pennsylvania,	1860
Jacob T. Haehnlen, Jr.,	Pittsburg,	Pennsylvania,	1860
A. H. Grimshaw,	Wilmington,	Delaware,	1858
John P. Toner,	Wilmington,	Delaware,	1859
George W. Andrews,	Baltimore,	Maryland,	1856
A. P. Sharp,	Baltimore,	Maryland,	1855
J. C. Rogers,	Baltimore,	Maryland,	1856
James M. Bowers,	Baltimore,	Maryland,	1856
Israel J. Grahame,	Baltimore,	Maryland,	1856
L. Phillips,	Baltimore,	Maryland,	1856
J. Jacob Smith,	Baltimore,	Maryland,	1856
Charles Caspari,	Baltimore,	Maryland,	1856
John W. Barry,	Baltimore,	Maryland,	1856
J. H. Lemmon,	Baltimore,	Maryland,	1856
Joseph Roberts,	Baltimore,	Maryland,	1856
E. J. Russell,	Baltimore,	Maryland,	1856
J. Faris Moore,	Baltimore,	Maryland,	1856
Edward C. Gilpin,	Baltimore,	Maryland,	1856
Oscar Monsarrat,	Baltimore,	Maryland,	1856
G. Davidge Woods,	Baltimore,	Maryland,	1856
J. B. Baxley,	Baltimore,	Maryland,	1856
Samuel McPherson,	Baltimore,	Maryland,	1856
James Balmer,	Baltimore,	Maryland,	1856
William S. Thompson,	Baltimore,	Maryland,	1856
William Caspari,	Baltimore,	Maryland,	1856
T. W. Tomlinson,	Baltimore,	Maryland,	1856
J. J. Thomsen,	Baltimore,	Maryland,	1856
Thomas H. Hilsby,	Baltimore,	Maryland,	1856
N. H. Jennings,	Baltimore,	Maryland,	1857
Elisha H. Perkins,	Baltimore,	Maryland,	1857

E. Kloman,	Baltimore,	Maryland,	1858
A. Vogeler,	Baltimore,	Maryland,	1858
Lewis Dohme,	Baltimore,	Maryland,	1859
H. A. Elliott,	Baltimore,	Maryland,	1859
John Block,	Baltimore,	Maryland,	1860
John Benzinger,	Baltimore,	Maryland,	1860
James E. McDaniel,	Baltimore,	Maryland,	1860
Valentine Harbaugh,	Washington,	Dist. of Columbia,	1856
H. H. McPherson,	Washington,	Dist. of Columbia,	1856
W. H. Gilman,	Washington,	Dist. of Columbia,	1856
Joseph Walsh,	Washington,	Dist. of Columbia,	1856
F. S. Walsh,	Washington,	Dist. of Columbia,	1856
John L. Kidwell,	Georgetown,	Dist. of Columbia,	1856
D. S. Dyson,	Washington,	Dist. of Columbia,	1857
Samuel F. Tyson,	Washington,	Dist. of Columbia,	1857
Daniel B. Clarke,	Washington,	Dist. of Columbia,	1857
Hervey Herman,	Washington,	Dist. of Columbia,	1858
Edward Shoemaker,	Washington,	Dist. of Columbia,	1858
Joseph W. Nairn,	Washington,	Dist. of Columbia,	1858
T. C. McIntire,	Washington,	Dist. of Columbia,	1858
R. A. Payne,	Washington,	Dist. of Columbia,	1858
S. R. Sylvester,	Washington,	Dist. of Columbia,	1858
John L. Love,	Washington,	Dist. of Columbia,	1858
Joseph B. Moore,	Washington,	Dist. of Columbia,	1858
Cornelius Boyle,	Washington,	Dist. of Columbia,	1858
James N. Callan,	Washington,	Dist. of Columbia,	1857
S. B. Watie,	Washington,	Dist. of Columbia,	1858
Lewis M. Smith,	Washington,	Dist. of Columbia,	1858
<i>Albert G. Palmer,</i>	Washington,	Dist. of Columbia,	1858
Francis L. Gaither,	Washington,	Dist. of Columbia,	1860
Giles G. Simms,	Washington,	Dist. of Columbia,	1860
R. H. Stabler,	Alexandria,	Virginia,	1856
J. W. Bowling,	Alexandria,	Virginia,	1857
John A. Milburn,	Alexandria,	Virginia,	1858
Joseph Laidley,	Richmond,	Virginia,	1852
T. Roberts Baker,	Richmond,	Virginia,	1856
James Cooke,	Fredericksburg,	Virginia,	1856
Fayette W. Johnson,	Fredericksburg,	Virginia,	1858
<i>Silas Whitehead,</i>	Fredericksburg,	Virginia,	1856
J. Hartly Bunn,	Lynchburg,	Virginia,	1859
William Loeffler,	Chambersburg,	Virginia,	1857

Charles K. Gallagher,	Washington,	North Carolina,	1857
Richard B. Saunders,	Chapel Hill,	North Carolina,	1858
John Thomson,	Sumpter,	South Carolina,	1858
H. J. Macdonald,	Barnwell, C. H.,	South Carolina,	1858
R. H. Land,	Newberry, C. H.,	South Carolina,	1859
Lewis T. Sillyman,	Columbia,	South Carolina,	1859
A. A. Solomons,	Savannah,	Georgia,	1858
W. W. Solomons,	Savannah,	Georgia,	1858
Robert Battey,	Rome,	Georgia,	1856
W. H. Warner,	Rome,	Georgia,	1859
J. B. W. Nowlin,	Rome,	Georgia,	1859
John M. Clark,	Milledgeville,	Georgia,	1857
Fleming G. Grieve,	Milledgeville,	Georgia,	1859
John S. Pemberton,	Columbus,	Georgia,	1857
J. A. Taylor,	Atlanta,	Georgia,	1859
W. A. Lansdell,	Atlanta,	Georgia,	1859
Robert J. Massey,	Atlanta,	Georgia,	1859
B. M. Smith,	Atlanta,	Georgia,	1859
George B. Fish,	Augusta,	Georgia,	1860
J. Henry Zeilin,	Macon,	Georgia,	1859
O. F. Cawthon,	Mobile,	Alabama,	1860
P. C. Candidus,	Aberdeen,	Mississippi,	1857
Crawford Blackwood,	Columbus,	Mississippi,	1857
Matthew F. Ash,	Jackson,	Mississippi,	1856
William Pryor Creecy,	Vicksburg,	Mississippi,	1860
A. E. Richards,	Plaquemine,	Louisiana,	1855
James A. Lee,	New Iberia,	Louisiana,	1856
William Longshaw, Jr.,	Bayou Sara,	Louisiana,	1858
John Baynon,	Shreveport,	Louisiana,	1858
John H. Pope,	New Orleans,	Louisiana,	1860
William B. Chapman,	Cincinnati,	Ohio,	1852
William S. Merrill,	Cincinnati,	Ohio,	1854
A. M. Stevens,	Cincinnati,	Ohio,	1854
W. J. M. Gordon,	Cincinnati,	Ohio,	1854
Lewis Rehfuß,	Cincinnati,	Ohio,	1854
J. V. Whetstone,	Cincinnati,	Ohio,	1854
J. W. Hannaford,	Cincinnati,	Ohio,	1854
J. C. Parr,	Cincinnati,	Ohio,	1856
Paul Reinlein,	Cincinnati,	Ohio,	1856
Oliver F. Gordon,	Cincinnati,	Ohio,	1857
Charles A. Junghanns,	Cincinnati,	Ohio,	1858

George A. Sheusler,	Cincinnati,	Ohio,	1858
W. F. Clency,	Cincinnati,	Ohio,	1859
J. H. Larwell,	Wooster,	Ohio,	1858
J. W. Deitrich,	Dayton,	Ohio,	1856
William Fiske,	Cleveland,	Ohio,	1857
E. W. Sackrider,	Cleveland,	Ohio,	1859
J. F. Grossklans,	Navarre,	Ohio,	1859
Frederick Stearns,	Detroit,	Michigan,	1855
T. R. Spence,	Detroit,	Michigan,	1857
Otto Leusner,	Detroit,	Michigan,	1857
Washington Laycock,	Detroit,	Michigan,	1857
Lewis E. Higby,	Detroit,	Michigan,	1858
Samuel B. Duffield,	Detroit,	Michigan,	1859
George M. Wheeler,	Detroit,	Michigan,	1860
William Johnston,	Detroit,	Michigan,	1860
Robert F. Lattimer,	Jackson,	Michigan,	1857
John. T. Fuller,	Ann Arbor,	Michigan,	1857
Uriah B. Wilson,	Ann Arbor,	Michigan,	1859
Robert C. Wardell,	Battle Creek,	Michigan,	1860
Thomas H. Barr,	Terre Haute,	Indiana,	1853
John A. Child,	Madison,	Indiana,	1856
B. F. Scribner,	New Albany,	Indiana,	1858
George W. Sloan,	Indianapolis,	Indiana,	1857
Charles Pefferman,	Peru,	Indiana,	1859
C. F. G. Meyer,	Fort Wayne,	Indiana,	1860
W. J. Luck,	Vincennes,	Indiana,	1859
Edward O. Gale,	Chicago,	Illinois,	1857
William H. Gale,	Chicago,	Illinois,	1857
James D. Paine,	Chicago,	Illinois,	1857
M. M. DeLevis,	Chicago,	Illinois,	1859
George Buck,	Chicago,	Illinois,	1860
Robert Thompson,	Bloomington,	Illinois,	1860
George Blinkhorn,	Rock Island,	Illinois,	1860
Eugene L. Massot,	St. Louis,	Missouri,	1857
James O'Gallagher,	St. Louis,	Missouri,	1858
J. Chadwick Moody,	St. Louis,	Missouri,	1858
Alexander Leitch,	St. Louis,	Missouri,	1858
Enno Sander,	St. Louis,	Missouri,	1858
W. H. Dornin,	St. Louis,	Missouri,	1858
Isaac E. Jones,	St. Louis,	Missouri,	1858
Samuel D. Hendel,	St. Louis,	Missouri,	1858

George M. Washburn,	St. Louis,	Missouri,	1859
Arthur Leitch,	St. Louis,	Missouri,	1860
H. A. Hughes,	Louisville,	Kentucky,	1857
J. T. Barnett,	Danville,	Kentucky,	1859
John Jackson,	Knoxville,	Tennessee,	1857
<i>Samuel W. Osgood,</i>	Davenport,	Iowa,	1858
C. F. G. Collins,	Beloit,	Wisconsin,	1859
John R. Drake,	Milwaukee,	Wisconsin,	1860
Henry C. Morris,	St. Paul,	Minnesota,	1859
W. Sherman Potts,	St. Paul,	Minnesota,	1859
<i>Charles L. Bache,</i>	San Francisco,	California,	1852
William B. Little,	San Francisco,	California,	1857
Louis D. Langwiert,	San Francisco,	California,	1859
Charles Hodge,	San Francisco,	California,	1859
George S. Dickey,	San Francisco,	California,	1859
George E. Hinckly,	San Francisco,	California,	1859
Charles E. Hineckly,	San Francisco,	California,	1859
William H. Keith,	San Francisco,	California,	1859
James G. Steele,	San Francisco,	California,	1859
Robert Hall,	San Francisco,	California,	1859
James H. Widdber,	San Francisco,	California,	1859
William H. Brigham,	San Francisco,	California,	1859
Charles P. Pollard,	Marysville,	California,	1859
George C. Hunt, Jr.,	Frederickton,	N. Brunswick, N. S.	1859
William Saunders,	London,	Canada West,	1860

HONORARY MEMBERS.

Daniel B. Smith,	Philadelphia, Pennsylvania,	1856
Thomas Farrington,	Boston, Massachusetts,	1856
Montgomery J. Bailey, M. D.,	New York, New York,	1856
George B. Wood, M. D.,	Philadelphia, Pennsylvania,	1857
Franklin Bache, M. D.,	Philadelphia, Pennsylvania,	1857
Elias Durand,	Philadelphia, Pennsylvania,	1857

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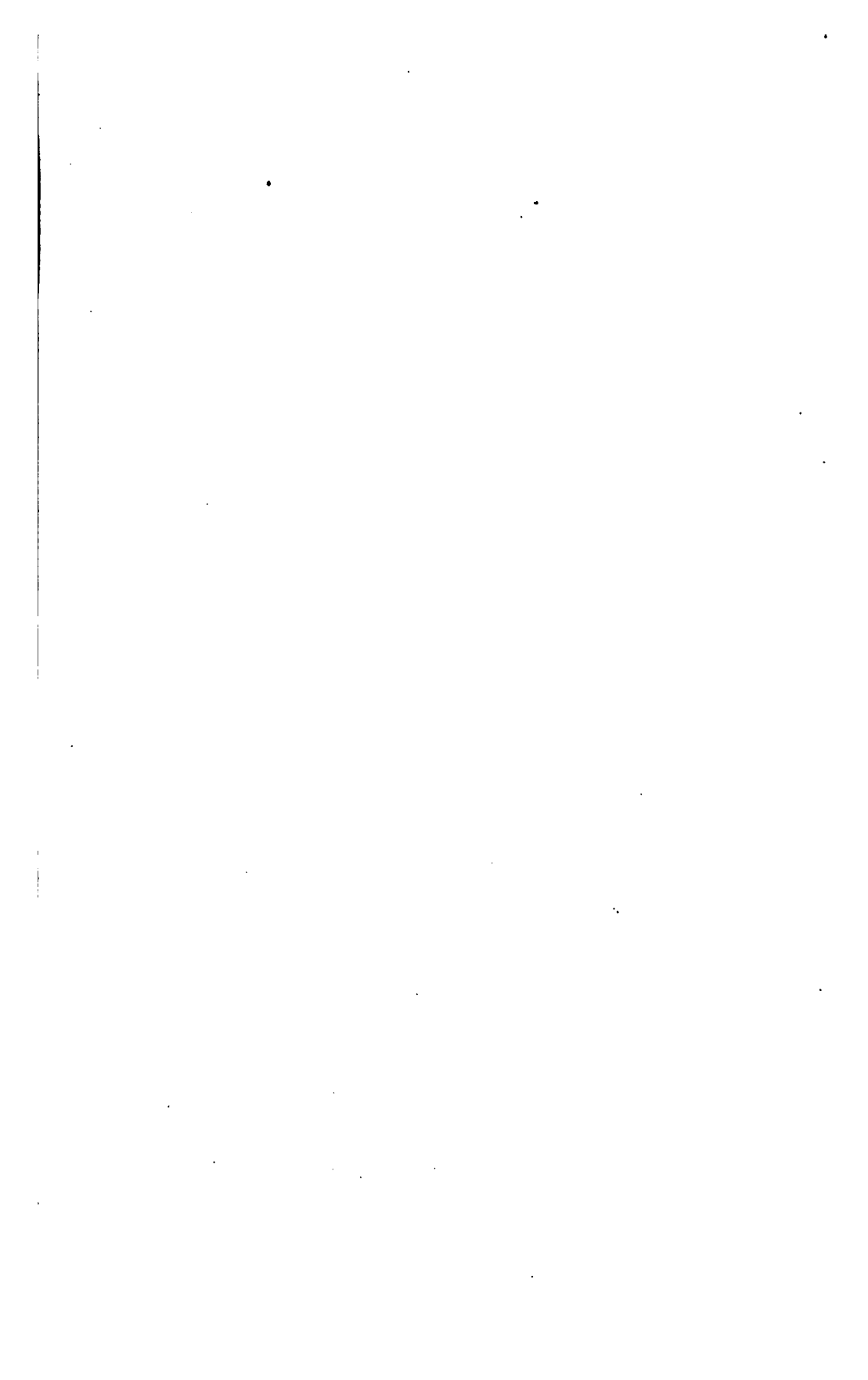
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1 gal.
239+







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